MAY 2, 1955

What Future for Mechanical Refrigeration? . . . p. 45

RAILWAY AGE

One of five Simmons-Boardman Railway Publications

Pennsylvania Railroad Bridges Using Wrought Iron Deck Plates

Bladensburg Road, Washington, D.C.	2 Bridges
Arbutus, Maryland	1 Bridge
Sparrows Point Spur, Baltimore, Md.	3 Bridges
North Point Road, Baltimore, Md.	1 Bridge
Middle River, Maryland	1 Bridge
Queen Anne, Maryland	1 Bridge
Chester, Pa.	1 Bridge
Northampton, Pa.	1 Bridge
Linden, N.J.	1 Bridge
Mulberry St., Baltimore, Md.	1 Bridge
King of Prussia, Pa.	1 Bridge
Paoli, Pa.	1 Bridge
Jersey City, N.J.	3 Bridges
Exton, Pa.	2 Bridges
Wilmington, Del.	1 Bridge

Wrought Iron Deck Plates Increase the Life-Span of these Pennsylvania Railroad Bridges

The latest count shows that 21 Pennsylvania Railroad bridges in the Eastern Region are decked with wrought iron plates. A listing of these bridges, and four typical installations are shown above.

The selection of wrought iron plate for this service is sound engineering. Plates are subject to vibration and severe corrosive attack from coal and refrigerator car drippings and run-off water. The use of ballast makes it difficult for regular inspection and maintenance. It all adds up to the need for a material that can withstand corrosion forces and fatigue stresses. And wrought iron plate has a proved record of durability under these conditions. Too, it is easily fabricated . . . a plus value in deck plate installation. Riveted or welded, the plates form a long-lasting, water-tight coat over the entire bridge floor to protect structural members.

More information on this proved wrought iron plate application is in our bulletin, *Wrought Iron in Bridge Construction*. Write for your copy.

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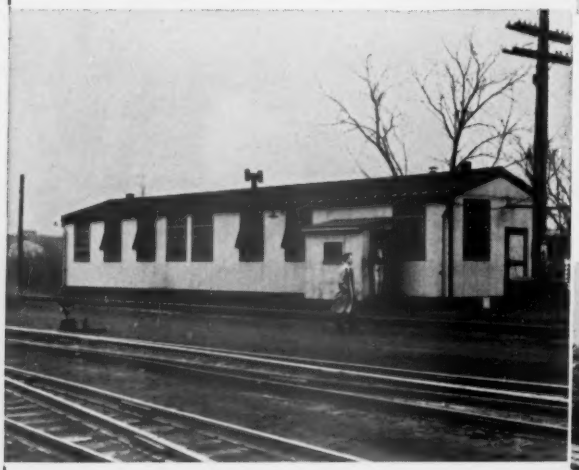

▲ This Armco Steel Building, used by the Erie Railroad, is at Susquehanna, Pa. It was originally erected in 1940 at another site. In moving, the structure was shortened and the leftover STEELOX Panels were used for partitions and ceiling.

◀ This Armco Building was needed at the other end of the yard at Cincinnati, Ohio, in 1949. So the Baltimore and Ohio Railroad loaded the complete building on a flat car and took it to this new site. **Below:** Building being moved.

Many railroads are consolidating facilities to enable them to decrease labor costs and capital investment while improving service.

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Why not be sure you have this extra protection as a guard against changing conditions? You can get it, plus advantages of fire-resistance, weathertightness, strength and durability—simply by specifying Armco Steel Buildings. More than 100 American railroads, including all major systems, are using Armco Buildings today.

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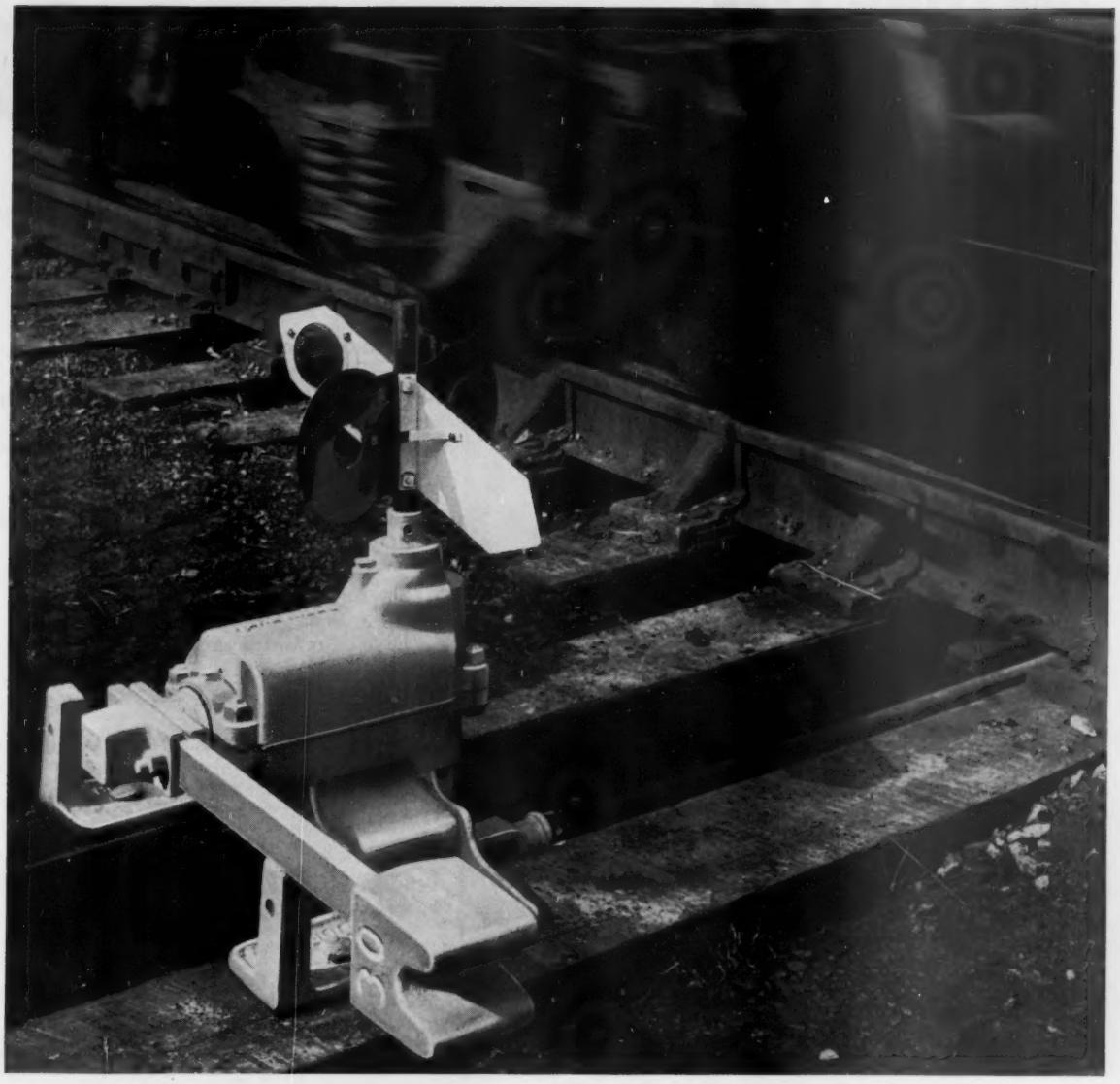
ARMCO STEEL BUILDINGS

ARMCO



A run-through is a snap with Model 99

You watch as a cut of cars moves into a closed switch. The wheels nudge the points, and *snap!* the switch clicks over to the new position. When the engine passes smoothly through, you notice that the points continue to hold the new setting, the target has turned to show the proper indication, while the throwing lever remains unmoved.

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Railroads seem to think highly of Model 99, if the number of purchases in less than two years means anything. But perhaps a more helpful criterion for you would be a first-hand look. One of our engineers can, and gladly will, arrange a demonstration at your convenience. Just call or drop a line to our nearest office.

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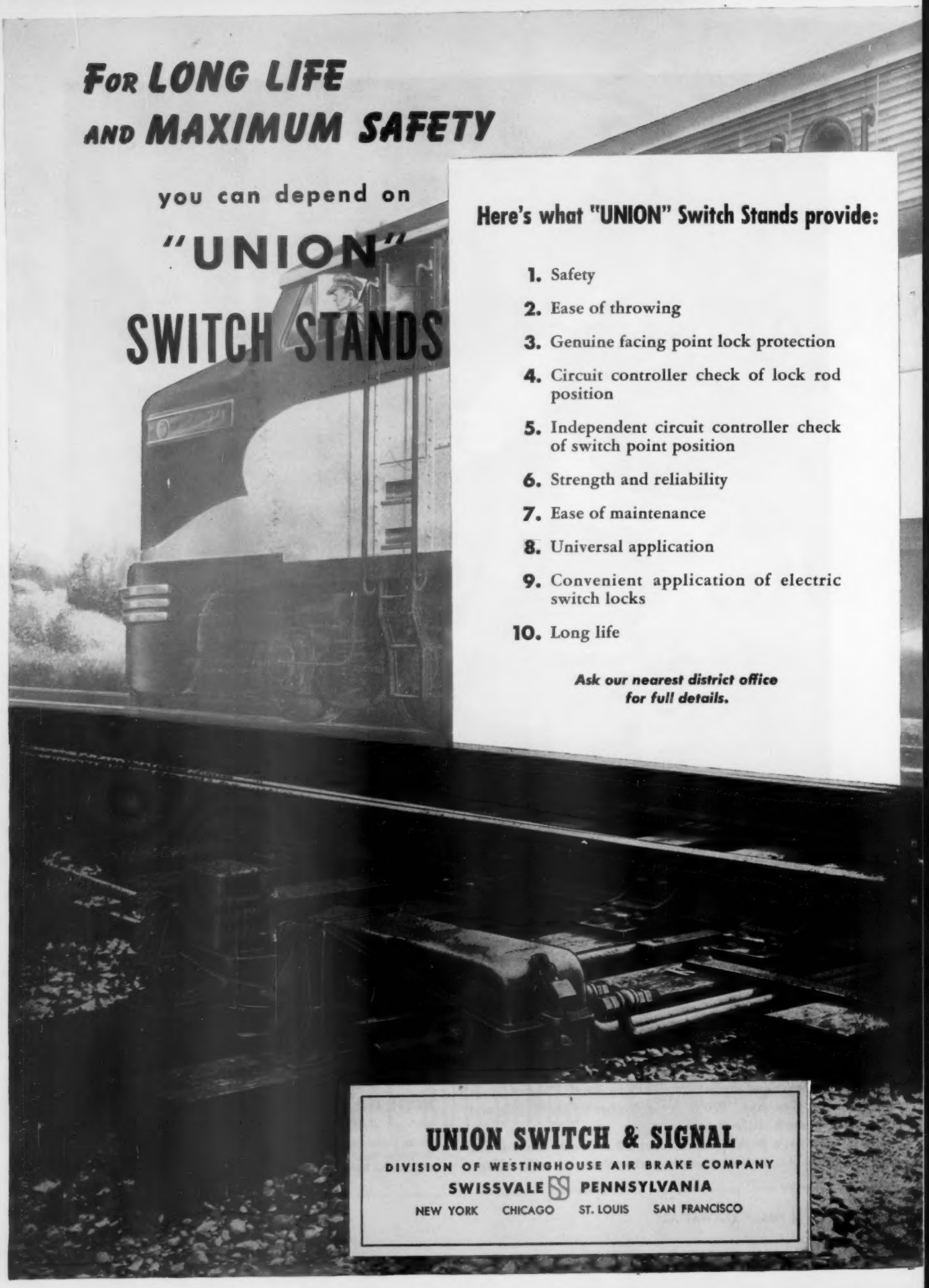

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May 2, 1955 **Vol. 138, No. 18**

Week at a Glance

Where equipment is coming from — not traffic — will be the railroads' big worry next year, if Economist Eliot Janeway was right in the optimistic predictions he made before the Western Railway Club last week. The present surge in business, he said, has been underestimated. Railroads will have to buy heavily in 1956; he thinks they should do it now, before costs increase further. 7

Immediate action to implement by legislation any important part of the Cabinet Committee's report on transportation (*Railway Age*, April 25, page 49) is highly unlikely, judging from statements at last week's TAA institute in Pittsburgh. Aside from the to-be-expected careful consideration of the various proposals by Congress, truck and waterway spokesmen indicated violent opposition to anything likely to help railroads—except the idea of speeding up abandonments by increasing ICC power. 9

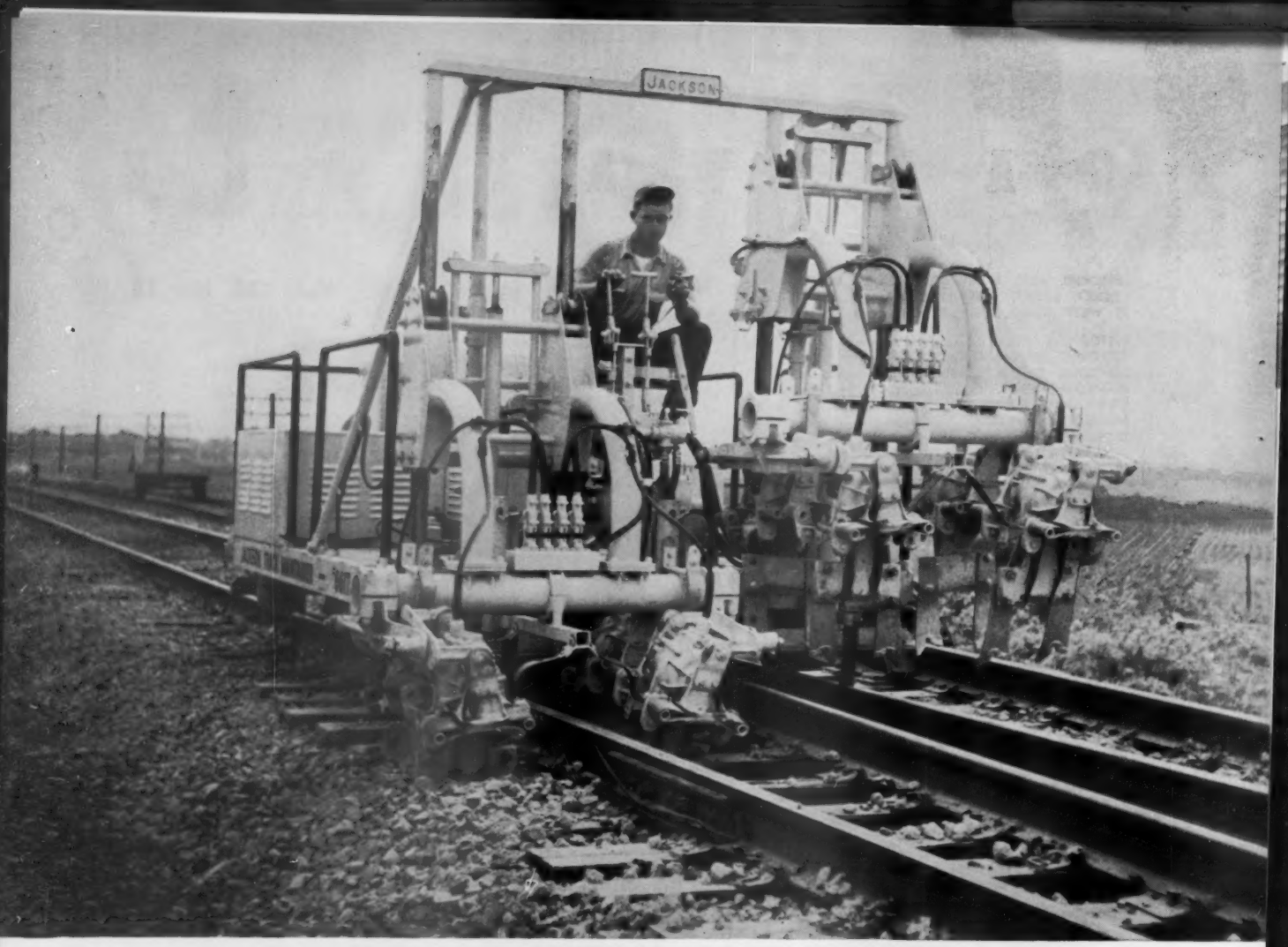
FORUM: Is there a future for mechanical refrigeration? Undoubtedly, yes—though there are still technical and economic problems to be overcome, and probably some new economic factors to be encountered. 45

LCL checking is faster in the MP's Kansas City freighthouse where pickers in cars communicate with checkers in office via efficient talk-back loudspeaker network. 46

Rapid transit for Cleveland — Line, costing $30 million, utilizes rights of way and facilities provided when the Union Terminal was built in 1930. Extensions are in the offing on the 13-mile system where speed is of prime importance. 48

There's economy in treated wood according to C. S. Burt of the IC and others speaking before and participating in the annual convention of the American Wood Preservers' Association. 53

All-welded superstructure is featured in the PRR's new



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Current Statistics

Operating revenues, two months	
1955	$1,473,724,375
1954	1,466,007,085
Operating expenses, two months	
1955	$1,151,779,868
1954	1,209,001,363
Taxes, two months	
1955	$ 148,010,751
1954	141,143,814
Net railway operating income, two months	
1955	$ 134,444,567
1954	76,095,396
Net income, estimated, two months	
1955	$ 99,000,000
1945	44,000,000
Average price railroad stocks	
April 26, 1955	97.01
April 27, 1954	61.60
Carloadings, revenue freight	
Fifteen weeks, 1955	9,717,854
Fifteen weeks, 1954	9,182,113
Average daily freight car surplus	
Wk. ended April 23, 1955	20,902
Wk. ended April 24, 1954	134,683
Average daily freight car shortage	
Wk. ended April 23, 1955	2,540
Wk. ended April 24, 1954	427
Freight cars on order	
April 1, 1955	17,974
April 1, 1954	20,966
Freight cars delivered	
Three months, 1955	7,263
Three months, 1954	13,741
Average number railroad employees	
Mid-March 1955	1,007,371
Mid-March 1954	1,059,612

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Departments

Benchmarks & Yardsticks	47
Competitive Transport	13
Equipment & Supplies	17
Figures of the Week	10
Forum	45
Labor & Wages	7
Law & Regulation	9
New Facilities	68
Operations	11
Organizations	11
Purchases & Stores	7
Railway Officers	69
Rates & Fares	17
Safety	10
Securities	68
Supply Trade	15
Traffic	16
What's New in Products	41

Week at a Glance CONTINUED

Mulberry Street underpass at Baltimore—the road's first "no-rivets" structure. 56

Why Pullman has Teletype network. Message handling system linking 56 offices and shops to Chicago message center speeds operations. 58

Result of research: X-2 wheels. New 1.5 carbon cast steel freight car wheel now going into increased production at American Brake Shoe's new Calera, Ala. plant. 60

BRIEFS

An "all-out" special on the New Haven will feature the Sid Caesar television show May 9. New Haven President Patrick B. McGinnis will be a special guest, and the entire audience will be made up of passengers on a special NH train from Hartford and other Connecticut cities.

Merger of the Louisville & Nashville and the Nashville, Chattanooga & St. Louis moved a step closer last week when stockholders of the latter road added their stamp of approval. Only about 10 per cent of the NC&StL shares were voted in opposition. Since the L&N holds about 75 per cent of them, this means that about three-fifths of non-L&N holders also approved the move. NC&StL President W. S. Hackworth, in confirming this press-time news development for *Railway Age*, said that prospect for early settlement of the prolonged strike against the two roads and their affiliates seemed dimmer following Wednesday's conference with the southern governors in Nashville.

That recent fire at the San Francisco ferry terminal damaged the structure somewhat, but did not greatly affect service by Southern Pacific ferries, which was suspended only for one evening. Although damage estimates ran as high as $1 million, the fire was confined to the west wing of the terminal. The two slips destroyed were used by state harbor craft.

Here's why you get

LOWEST TON-MILE COST

with solid-bearing freight cars

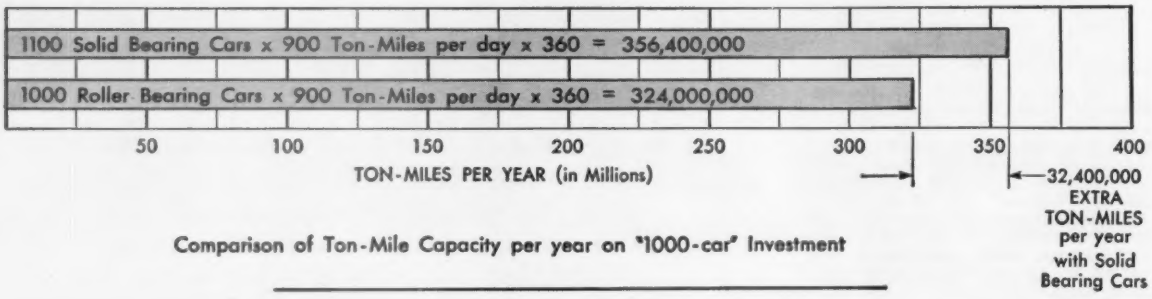
Projection of ton-mile costs as related to initial investment shows big economic advantage for solid bearings — even without any allowance for roller bearing maintenance or operating costs.

You can buy up to 10% more hauling capacity per dollar when you specify solid bearing cars. That means up to 10% more gross ton-miles of revenue, *and the lowest net ton-mile costs for operation!*

To illustrate: For the price of 1,000 roller bearing cars you can buy 1100 solid bearing cars. Make due allowance for all solid bearing operating costs on 1100 cars (you don't even have to consider the roller bearing failure, maintenance and operating costs) and you earn at least $250,000.00 per year more on your solid bearing car investment.

But suppose you don't need the 100 extra cars? Then you reduce your initial investment by $600,000.00 and get the same increased return per dollar represented by the $250,000.00 above — the same overall reduction in costs per ton-mile of operation.

Look at it another way: All your true maintenance costs for solid bearing assemblies will come to less than the interest and depreciation on the cost of rollers. That's positive assurance your overall ton-mile costs are lowest with low-cost solid bearings.*


1100 Solid Bearing Cars x 900 Ton-Miles per day x 360 = 356,400,000
1000 Roller Bearing Cars x 900 Ton-Miles per day x 360 = 324,000,000
50
100
150
200
250
300
350
400
TON-MILES PER YEAR (in Millions)
32,400,000 EXTRA TON-MILES per year with Solid Bearing Cars

Comparison of Ton-Mile Capacity per year on "1000-car" Investment

Still lower costs per ton-mile available

Real savings in ton-mile operating costs can be made with R-S Journal Stops and Satco lining metal. Journal Stops improve bearing lubrication, add to bearing life, and eliminate waste grabs. If all cars in a consist were journal-stop-equipped *the train could move to destination without attention to journal boxes.* Oiling could be on a periodic basis.

And bearings run cooler with Satco lining. You get lower operating temperatures, higher oil viscosity and a thicker film of oil. Write us for complete information on Journal Stops and Satco. Magnus Metal Corporation, 111 Broadway, New York 6; or 80 East Jackson Blvd., Chicago 4.

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Big Buying Year Ahead?

Upsurge is no "flash in the pan," says noted economist—Railroads should purchase for increased traffic needs before wage-cost spiral hikes buying costs again—A record 1956?

The year 1956 may be a banner buying period for America railroads, Eliot Janeway, noted author and economist, told the Western Railway Club in Chicago last week.

The railroads' ability and need to buy reflects increased railroad traffic. That, in turn, reflects activity in heavy industry, the nation's economic pacemaker, Mr. Janeway stated. "Railroad purchasing agents will be well-advised to anticipate the buying needs arising from the new traffic boom before the wage-cost spiral significantly raises their buying costs," he said.

The present surge in business activity has been seriously underestimated by business and financial opinion. "It's no flash in the pan," he asserted. "Quite the contrary, the boom has already run the country into a steel shortage which is due to grow worse, not better."

The present boom differs from that in 1951-1952 because:

- The present recovery of demand is not based upon a defense boom. That still lies ahead.
- Imports cushioned some of the inflationary shortages of the 1951-1952 boom. Today Europe's boom is greater than ours and Europe's defense demand is rising ahead of ours. Their shortages are more acute; thus they are aggravating, rather than relieving, our shortages.
- Today's record consumption is "unprecedented" in that it is eating up inventories instead of rising in the wake of war-accumulated inventories, as in the past.

"A major new round of steel and aluminum capacity expansion," is foreseen by Mr. Janeway. "Renewed industrial construction is about to be loaded on top of construction which is already straining our facilities of credit, equipment and manpower," he said. "Heavy construction of this kind is the most potent single source of railroad traffic. If sustained—and it will be sustained—it will force railroads to buy and borrow. Next year will see railroads worrying about where equipment is coming from, not traffic."

How to Finance?—Already burdened with high equipment debt, railroads will face borrowing difficulties. "The unprecendented rate of new borrowing by understandably favored credit risks is not likely to permit railroads to raise the capital they will need on credit terms as favorable as they require to get full benefit of earnings assured by new equipment fully employed under peak conditions," he said; adding:

"As sustained traffic recovery encourages railroads to return to the money market as active borrowers on capital account, they will be in growing need of easier credit terms.

"Next year will mark the beginning of the end for relief on accelerated amortization of equipment expenditures brought on by the Korean emergency. Were it not for the impending return of our national economy to emergency pressures, railroads would be subjected to severe financial strain by the combined impact of: (1) Loss of depreciation flow; (2) slowness in return on equipment at the present rate of amortization, and (3) cumulative obsolescence of plant and equipment.

"However, the imminent revival of equipment buying is due to be accompanied by a revival of rapid amortization allowances through reactivation of defense pressures. In addition, railroads will likely need easier credit terms to finance the prodigious scale of investment occasioned by the unprecedented burden of commercial plus defense traffic. The boom about to be showered upon them will be marked by a sustained prosperity in this country and intensified crisis abroad.

"The 1955-1956 revival of railroad buying will come as a dramatic and familiar recovery from famine to feast conditions. But this time the feast will not be short-lived."

ANOTHER LAST RUN for steam power was this re-enactment of the arrival of the first train into Tucson, Ariz., 75 years ago. The oil-burning 2-6-0 (possibly aged a bit beyond her actual years by the diamond stack) later hauled Tucson parents and children on short excursion runs within yard limits in modern streamlined coaches. At the end of the day of joint celebration by the railroad and the city, the locomotive was presented to the people of Tucson for permanent display in a city park.

Labor & Wages

Average Hourly Pay Was $1.91 Last Year

Class I railroad employees, other than executives, officials and staff assistants, earned average straight time hourly compensation of $1.91 in 1954. This was a nickel more than the 1953 average and a dollar more than the average in 1945.

According to the April "Monthly Comment" of the Bureau of Transport Economics and Statistics, Interstate Commerce Commission, the 1945 average was 91.6 cents. This rose to $1.543 in 1950, to $1.858 in 1953 and to $1.908 last year.

The number of Class I road employees averaged 1,064,705 in 1954, an 11.7% decline from the previous year,

but total compensation was down by only 8.8%, to $4,855,099,734. This was attributed in the report to a slightly higher wage scale in effect in 1954.

For the year 1954, the "Comment" reported, payrolls absorbed 51.8% of total railway operating revenues of $9,371 million. This compares with a 49.9% share of 1953's gross, which was $10,664 million.

The report put total straight time compensation last year at $4,315,133,653, a decrease of 9.8% from 1953, while overtime pay was down 24.6%, to $205,243,572. However, the report showed, pay for "other allowances" including holiday, vacation and deadheading pay increased by 23.8%, to $334,722,509. This was explained as being due largely to new agreements which gave employees with 15 years of service three-week vacations.

L&N Strike Stalemate?

Violence continues—Carrier meets with governors in Nashville—Outlook for quick settlement seems dim

Lack of agreement on issues to be arbitrated has dimed hopes for early settlement of the strike against the Louisville & Nashville, the Nashville, Chattanooga St. Louis, and affiliated roads (*Railway Age*, April 25, page 8).

As this was written, L&N President John E. Tilford was conferring in Nashville with governors of the 13 affected states. Earlier, Mr. Tilford had wired the governors that his road was willing to submit the issues to arbitration provided that: (1) The strike be called off at once; (2) the arbitrators' decision be final; (3) the arbitrators be "neutral"; and (4) they be limited "reasonably" to questions arising under interpretation of recommendation of the Presidential emergency board in the non-operating unions' so-called "fringe benefit" case (*Railway Age*, May 24, 1954), out of which the present strike has grown.

Mr.Tilford agreed to let terms of the arbitrators' decision be retroactive to the date employees return to work. He urged that any arbitration agreement include "all reasonable safeguards to assure selection of thoroughly neutral and impartial persons" as arbitrators.

The non-operating unions, on the other hand, have sought to re-open negotiations on the entire health-welfare benefits case. To detract from the L&N's argument that its proposed benefits insurance plan would cost employees less than the so-called national fund set-up agreed to by most other roads, they have presented to all railroads new demands for 100% carrier payment of the national program's costs. These demands have been rejected (*Railway Age*, April 25, page 10).

More Violence—Meanwhile acts of violence continued to keep the 44-day old strike in the public limelight. A Shelby county, Alabama, sheriff stated that sabotage definitely caused destruction by fire of a timber trestle near Calera. A 104-ft section of the main-line structure was completely destroyed and its replacement has been estimated to cost $150,000. Dynamite was found affixed to a trestle near Pineville, Ky. At another point a slowly-moving freight train was fired upon by occupants of a nearby auto. When the engine crew fired back at the auto, local police arrested both the crew and occupants of the car. No one was injured during the incident. Six crewmen were injured in derailment of a freight train near Barbourville, Ky.—the fourth derailment reported since the walkout began. Four diesel units and 27 cars of a 95-car train were derailed and damaged.

A company spokesman estimated that L&N employee payroll losses came to $5.5 million a month. Freight, except for lcl, livestock and perishables, is being handled on irregular schedules. Passenger service remains at a standstill.

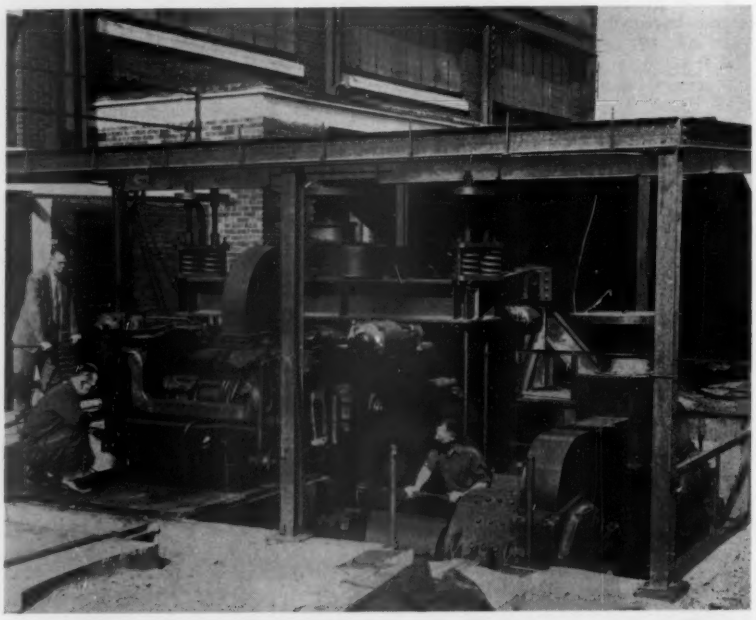
3½% Wage Rise Averts New York Harbor Strike

A strike of railroad ferry and tugboat employees in New York Harbor was averted by the signing last week of an agreement to increase wages of 2,000 harbor employees by 3½%. The increase is retroactive to last October 28. The union—Masters, Mates & Pilots, AFL—originally had asked for a 15% increase and had threatened to strike at midnight April 10 if the demands were not met. Part of the increase, two cents, was granted in lieu of health and welfare insurance.

CNR Employee Protests Check-Off of Union Dues

Robert Sloan, a mechanic employed by the Canadian National at Montreal, and a member of the Canadian Association of Railwaymen, has petitioned the Superior Court of Quebec to declare null and void an agreement recently signed between the railway and 10,000 of its employees.

Mr. Sloan is challenging the April 1 agreement, in what is regarded as an important test case, on the ground that its provision for a compulsory



AN OUTDOOR "TORTURE PIT" for testing new traction motor designs is helping engineers at the General Electric Company's Locomotive and Car Equipment Department at Erie, Pa., solve motor performance problems without having to test equipment on a locomotive. The motors are mounted in a locomotive truck and put through all types of operating tests. A sequence timer, which automatically controls speed and power, subjects the motors to a 24-hr-a-day cycle simulating a typical locomotive run. This grueling operation shortens the time required to perfect new traction motor designs.

check-off of union dues violates Canadian labor laws. He contends that the Brotherhood of Locomotive Firemen & Enginemen—of which his own organization is a rival—has no legal right to impose its demands on employees without consent of each local union.

Law & Regulation

Cabinet Report Stirs Opposition

Trucking and waterway interests strenuously object to report's recommendations at TAA institute on transportation

Chances of favorable action in this session of Congress on the recently revealed report (*Railway Age*, April 25, page 49) of President Eisenhower's Cabinet Committee on Transport Policy and Organization are very slim.

This was indicated by statements made in Pittsburgh last week at the Allegheny Area Institute of Transportation, sponsored by the Transportation Association of America in cooperation with nine local and area organizations representing carriers, shippers and general public.

Congressman J. Percy Priest, chairman of the House Committee on Interstate and Foreign Commerce, provided the directly discouraging news to those who favor the report, when he told the institute luncheon it is "doubtful that legislation of this character is likely at this session," and added that it is sure to entail lengthy hearings and thorough consideration by his committee.

Mr. Priest was emphatic, however, in agreeing that the common carrier industry must be maintained and strengthened. His speech was broadcast over a closed circuit from his desk in the House office building to the ball room of the William Penn Hotel. E. G. Plowman, traffic vice-president of U. S. Steel Corporation and institute chairman, and Mr. Priest exchanged comments so the audience could hear.

John V. Lawrence, managing director, American Trucking Associations, told the institute: "We are opposed to the Cabinet Committee report on several grounds. It proposes to strike from the declaration of national transportation policy the principle that inherent advantages of each form are to be maintained; it opens up rate battles by the combination of minimum and maximum rate changes, virtual repeal of the Fourth Section, and shaving down of the Interstate Commerce Commission's powers of suspension. It may be helpful to big shippers and big carriers, but will be harmful to little shippers and little carriers."

Chester C. Thompson, president, American Waterways Operators, said: "We are for a sound system of transportation, but the Cabinet Committee report, as a package, seems designed only to help rail carriers. We are concerned over proposals to change the declaration of policy, minimum and maximum rate controls, the Fourth Section amendment, and the changes in suspension powers."

David I. Mackie, chairman of the Eastern Railroad Presidents Conference, pointed out that the report was the result of long study by the Cabinet Committee and was, in effect, signed by the entire cabinet. The report, he said, "recognizes that there have been great changes in conditions, with much regulation now unbalanced as a result."

Recommendations call for modernized, balanced regulation so all segments [of transportation] will have more equal opportunity," Mr. Mackie added. "I don't believe there is any occasion for fear of a dog-eat-dog development because of powers reserved to the commission. The thought evidently was to let transportation which could serve at lesser cost be permitted to do that, and so be helpful to all."

With the five-point program of the Transportation Association of America as their theme (*Railway Age*, February 7, page 8), speakers under direction of George P. Baker, professor of transportation at the Harvard Business School and president of TAA, indicated approval of recommendations of TAA directors.

Mr. Thompson supported the move to get government out of transportation, emphasizing unfair government competition with airlines as well as water carriers and others. He urged repeal of excise taxes on transportation.

J. H. Carmichael, president of Capital Airlines, urged amendment of Section 22 of the Interstate Commerce Act to eliminate cut rates on government traffic; and advocated changes in the exemption provision under which non-scheduled airlines operate, and some measure of regulation of air contract carriers.

Mr. Lawrence supported TAA proposals to reduce railroad losses on unprofitable lines and service, declaring all transportation should be strong. He, too, urged amendment of Section 22 to eliminate cut rates on government traffic.

Mr. Mackie said the proposal to reduce passenger losses by giving the ICC appellate jurisdiction over discontinuance of service decisions of state commissions is necessary; and he vigorously supported the airline proposal for restrictions on non-scheduled and contract carriers.

Giles Morrow, president of the Freight Forwarders Institute, supported the proposal to reduce unprofitable railroad services, and repeal of excise taxes on transportation.

Gordon C. Locke, executive secretary of the Committee for Pipe Line Companies, backed up the plea to get government out of the transportation business, and to repeal excise taxes on transportation.

Donald G. Ward, director of transportation, Olin Mathieson Chemical Corporation, pointed out that transportation takes about one-fifth of the annual national production, and the rest of the nation's production must make use of transportation to grow and expand. The user, he said, is the arbiter in matters of transportation policy, and has the primary interest in a sound transportation system. Mr. Ward spoke of the importance of working through the TAA in bringing all groups together on public-interest solutions to these basic problems.

Mr. Plowman said the competitive transportation area in which we are now living is divided into a field which "is declining percentage-wise, so far as common carriers are concerned, and increasing so far as contract and private transportation is concerned." Steps must be taken, he said,

"LET US COMPETE"

"There are three very important phases of railroad operation that must be perfected to produce desired results. These we consider to be good service, effective selling and competitive pricing. Of these three, two can be controlled to a large degree by railroads themselves. I mean, of course, good service and effective selling. The third, competitive pricing, is a matter over which we have much less latitude, due to regulations of federal and state regulatory bodies . . .

"I do not subscribe to the theory that a railroad, like the Central of Georgia in such a highly competitive area, can sit idly by waiting for new laws and regulations while unrestricted truckers and other carriers price and cut us out of the picture. We must remain competitive and where we can cut our prices to meet competition and still maintain a reasonable profit for the tonnage hauled, I say let us do it. I say further, let us and all other carriers be so regulated that we are allowed to compete fairly and in the spirit of our basic concept of the free enterprise system. . . ."

—From an address to the New York Society of Security Analysts by W. E. Dillard, president and general manager, Central of Georgia.

if we are to avoid nationalization of transportation.

Discussing specific Pittsburgh viewpoints on transportation were Charles Donley, president of Charles Donley & Associates; Milton E. Harris, president of Continental Transportation Lines; Richard N. Shields, president of the Pittsburgh & West Virginia; and William J. Butterbach, assistant to district manager, Trans World Airlines.

Commissioners Discuss ICC Organization and Work

Five Interstate Commerce Commissioners discussed the commission's organization and functions at the April 21 dinner meeting of the New York Railroad Club in the Hotel Commodore. They were Hugh W. Cross, Anthony F. Arpaia, Howard G. Freas, Kenneth H. Tuggle and Everett Hutchinson.

Commissioner Cross opposed what he described as sweeping proposals for changes in laws affecting transportation. The broadest of such proposals, he added, would substitute untested theories for "time-tested principles of administrative law as evolved over the years by the ICC and other agencies. . . . To the proponents who suggest a change by abolition of the agencies, I would ask this question: In what respect have these agencies failed in carrying out the duties vested in them by Congress?"

If a government agency or the work it does is unnecessary, said Commissioner Arpaia, it should be abolished. This, he emphasized, "should be accomplished through specific objection, properly supported, and not generalizations which destroy the faith of the public in the necessary activities of government or the confidence of the individual in himself." Mr. Arpaia said the necessary frequent reexamination of governmental powers, with the aim of pruning or altering those not geared to changing times, can be done more effectively without sarcasm, bitterness or hostility.

Commissioner Freas outlined the responsibility, scope and activities of the commission's Division 2, of which he is a member. He indicated the size of the ICC's work load by pointing out that over 140,000 tariffs were filed by various carriers in the past year.

Not Enough Research—Commissioner Tuggle said the railroad industry "has been tardy in its efforts, apathetic in its attitude, and belated in a drive toward more extensive technological development." There are scores of individual companies, he continued, which spend more on research each year than the entire railroad industry and its suppliers. "The easiest way for a railroad to become decadent is through decadent thinking," but "there can be no such thinking if railroad management will give full freedom to creative ideas in a stepped-up program of research backed by their resources and courage to discard old procedures in favor of new."

C&NW PIGGYBACKS MILITARY EXPLOSIVES

In a test movement in cooperation with the offices of the Chief of Transportation and the Chief of Ordnance of the U.S. Army, the Chicago & North Western has handled a 300,000-lb shipment of military explosives via piggyback from Baraboo, Wis., to Chicago.

The shipment, enroute to Watson, Ind., consisted of smokeless powder packed in cans and specially bulkheaded within the highway trailers. The C&NW owned trailers were secured with additional tie-down equipment providing about triple the security normally used in piggyback service.

The move is expected to point to a new flexibility in movement of military explosives, while at the same time hazardous handling enroute is eliminated. Military authorities indicated that further studies of piggybacking explosives are under way, and that it may be adopted as standard "if it proves satisfactory in all respects."

The newest member of the commission, Mr. Hutchinson, told his audience that this country has the greatest transportation system ever known, because we have kept alive individual initiative, "the incentive, the desire that men and women have to do things better for themselves."

ICC Tightens Rules on Hearing Postponements

In a move to expedite proceedings before it, the Interstate Commerce Commission has tightened up on its rules covering postponements of hearings.

The new requirements were spelled out in an April 28 statement issued by ICC Secretary Harold D. McCoy which reads, in part, as follows:

"The commission has decided to grant postponements of hearings and extensions of time in the future only upon substantial showings of necessity for such action. The failure of a party to complete preparations for a hearing or oral argument, or the occurrence of a conflict of dates, will not, standing alone, be considered as adequate to warrant postponement. The press of other work will not necessarily be considered as adequate to warrant the extension of a time period.

"Hearings will be assigned so as to give sufficient time for all parties to prepare, and due dates for briefs will be fixed in the first instance so that sufficient time will be allowed for their preparation.

"Those participating in proceedings before the commission will be expected to be prepared for hearings on the dates they are assigned and to refrain from requesting extensions of time except where absolute necessity dictates such a request and warrants an extension."

Safety

February Accidents

The Interstate Commerce Commission has released its Bureau of Transport Economics and Statistics' preliminary summary of railroad accidents for February and this year's first two months.

The compilation, which is subject to revision, follows:

Item	Month of February 1955	Month of February 1954	2 months ended with February 1955	2 months ended with February 1954
Number of train accidents*	669	585	1,324	1,302
Number of accidents resulting in casualties	44	38	86	88
Number of casualties in train, train-service and nontrain accidents:				
Trespassers:				
Killed	50	46	102	84
Injured	52	60	98	104
Passengers on trains:				
(a) In train accidents*				
Killed	..	..	..	..
Injured	71	15	116	24
(b) In train-service accidents				
Killed	1	1	2	2
Injured	103	124	275	267
Travelers not on trains:				
Killed	1	..	4	2
Injured	96	55	189	138
Employees on duty:				
Killed	21	20	40	42
Injured	1,279	1,221	2,651	2,655
All other nontrespassers:**				
Killed	103	106	271	245
Injured	484	412	1,020	998
Total—All classes of persons:				
Killed	176	173	419	375
Injured	2,085	1,887	4,349	4,186

* Train accidents (mostly collisions and derailments) are distinguished from train-service accidents by the fact that the former caused damage of $350 or more to railway property in 1954. Beginning January 1, 1955, this minimum was raised to $375. Only a minor part of the total accidents result in casualties to persons, as noted above.

** Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties for all classes of persons, including both trespassers and nontrespassers, were as follows:

Persons:				
Killed	98	106	256	238
Injured	347	303	752	729

Figures of the Week

Freight Car Loadings

Loadings of revenue freight in the week ended April 23 totaled 705,848 cars, the Association of American Railroads announced on April 28. This was an increase of 31,459 cars or 4.7%, compared with the previous week; an increase of 79,666 cars, or 12.7%, compared with the corresponding week last year; and a decrease of 73,956 cars, or 9.5%, compared with the equivalent 1953 week.

Loadings of revenue freight for the week ended April 16 totaled 674,389

cars; the summary, compiled by the Car Service Division, AAR, follows:

REVENUE FREIGHT CAR LOADINGS
For the week ended Saturday, April 16

District	1955	1954	1953
Eastern	121,444	108,223	129,896
Alleghany	135,430	114,336	154,807
Pocahontas	57,636	45,423	54,072
Southern	105,138	118,123	131,689
Northwestern ..	85,424	72,040	107,648
Central Western	114,097	102,405	113,168
Southwestern ..	55,220	52,334	60,348
Total Western Districts	254,741	226,779	281,164
Total All Roads	674,389	612,884	751,628
Commodities:			
Grain and grain products	41,291	40,564	42,732
Livestock	7,871	7,315	8,506
Coal	115,732	96,517	118,880
Coke	10,898	7,612	13,718
Forest Products .	37,898	38,746	44,265
Ore	33,006	17,837	65,553
Merchandise l.c.l.	61,287	62,219	69,659
Miscellaneous ..	366,406	342,074	388,315
April 16	674,389	612,884	751,628
April 9	663,462	606,790	721,139
April 2	659,059	599,302	704,517
March 26	639,447	601,414	715,333
March 19	659,117	609,959	701,065
Cumulative total, 15 weeks ..	9,717,854	9,182,113	10,497,114

In Canada.—Carloadings for the seven-day period ended April 7 totaled 71,605 cars, compared with 103,861 cars for the previous 10-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
April 7, 1955 ..	71,605	32,897
April 7, 1954 ..	65,994	28,804
Cumulative Totals		
April 7, 1955 ..	932,386	433,217
April 7, 1954 ..	903,331	394,412

Operations

NYC May Abandon Grand Central as Terminal

The New York Central "is prepared to move forward immediately with the abandonment as a terminal of Grand Central" in New York City.

Thomas J. Deegan, Jr., NYC staff vice-president, told the New York State Board of Equalization and Assessment in Albany, N.Y., last week that if the board insisted upon a 300% increase in the assessment of the "intangible right" of the railroad to operate in Park avenue from Grand Central to 133rd street, the NYC might be forced to establish a new passenger terminal outside Manhattan.

"It is no secret," Mr. Deegan added, "that plans already have been drawn with a view to development of terminal facilities in the area surrounding East 138th street."

Mr. Deegan appeared before the board to protest an increase in the special franchise tax valuation from $12,180,000 to $49,450,000. "Increasing the valuation of this 'hole in the ground' by over 300% will run up the taxes of this company another $1.5 million—to provide facilities used exclusively for passenger service which last year cost the stockholders of this company $39 out-of-pocket. . . . By this action you may be forcing the railroad to discontinue operation of passenger trains through the Park Avenue cut, thus eliminating our services south of the Harlem river."

RAILWAY EXPRESS AGENCY President Alfred L. Hammell (left), accepts keys to a new International delivery truck from John L. McCaffrey, president of International Harvester Company. International is building 500 such trucks for REA as part of a $9,500,000 order for 3,000 trucks placed by the agency last year (*Railway Age*, October 4, 1954, page 70).

ICC Service Order Keeps GM&O at Meridian, Miss.

The Interstate Commerce Commission has issued a service order requiring the Meridian Terminal to permit the Gulf, Mobile & Ohio to use its facilities at Meridian, Miss., despite expiration of a contract covering such use.

The GM&O requested the service order with notification to the commission that the MT planned not to renew the joint use contract due to expire May 1. The GM&O said the refusal to renew the contract was the result of a dispute as to whether it was obliged to pay a pro rata share ($50,000) in retirement of $250,000 of MT mortgage bonds due to mature on May 1 also.

The GM&O stated that it was now studying plans for construction of its own facilities at Meridian where two of its passenger trains stop daily. It also asked for ICC authority to abandon operation over 0.57 miles of MT track but the commission did not act on this request. The order, effective May 1, will remain in effect through October 31.

PRR Speeds Up Some Trains

Eastbound running time of the Pennsylvania's St. Louis-New York "St. Louisan" was shortened by 30 minutes beginning April 24. The "Red Arrow" is now 35 minutes faster from Detroit to New York. Other new running times inaugurated coincident with daylight saving time shortened various trips from 10 to 20 minutes.

A new overnight all-room Pullman service in both directions between Pittsburgh and Indianapolis also began April 24. The 10-roomette, 5-double-bedroom sleeping car leaves Pittsburgh on the "St. Louisan" at 9:40 p.m., Sundays, Tuesdays and Thursdays, and arrives in Indianapolis at 4:15 a.m. Eastward, it operates on the same train Mondays, Wednesdays and Fridays.

The New York Central, on April 24, added its "Thrift Grill" dining service (*Railway Age*, May 11, 1953, page 10), to the New York-St. Louis "Knickerbocker" and St. Louis-New York "Southwestern Limited." The service, already on other NYC trains, serves quality meals at reduced prices.

Organizations

The **Raritan Traffic Club,** New Brunswick, N.J., is sponsoring, in conjunction with the Pennsylvania, an exhibition of rolling stock and locomotives in the yard of Johnson & Johnson Co., near the railroad station on May 10. Appropriate civic organizations will participate.

The 35th annual meeting of the **Protective Section, Association of American Railroads,** will be held at the Bellevue-Stratford Hotel, Philadelphia, May 18-20. Ralph C. Champlin, vice-president—public relations of the Pennsylvania, will be guest speaker at the dinner on May 19. Other speakers at business sessions will include E. P. Gangewere, vice-president, operation and maintenance, Reading; R. G. May,

Today this No. 12 is building a firebreak— Tomorrow it may be...

SHAPING EMBANKMENT

ELIMINATING IRREGULAR FILLS

CONTROLLING WEEDS AND BRUSH

POLICING THE YARD

TAKING UP TRACK

CLEARING SNOW

SLOPING FILLS

PULLING TIES

THE Caterpillar No. 12 Motor Grader is an all-around machine ready to tackle almost any off-track railroad job . . . and stay on the job until it's completed.

Here it's grading 4½ miles of firebreak for the Northwestern Pacific Railroad near Willits, Calif. When finished, the road will provide quick access in case of fire or other emergency in the area.

But that is today's job for the CAT* No. 12 Motor Grader. Tomorrow this versatile machine could be doing any number of jobs. It is indispensable for putting in good drainage, or controlling weeds and brush. In the snow country, they like it for widening clearance.

And now it does all of its many jobs *even better!* For the new No. 12 packs more power, 115 HP, and has faster reverse speeds. And the capacity of the transmission and clutch has been increased to match the greater horsepower. In addition, the No. 12 and the No. 112 have simplified starting from the seat and a foot-operated accelerator-decelerator which permits changing speeds without affecting hand-throttle setting.

Your Caterpillar Dealer would like to demonstrate these new motor graders on *your* job. Seeing them in action you'll understand how these versatile machines now can give you even more work at lower cost.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

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NEW CAT MOTOR GRADER FEATURES— ANOTHER EXAMPLE OF LEADERSHIP IN ACTION!

vice-president, Operations and Maintenance department, AAR; Norman H. McCabe, special agent in charge, Federal Bureau of Investigation, Philadelphia; C. A. Naffziger, director, Freight Loss & Damage Prevention Section, AAR; D. H. Stephens, chief post office inspector, Washington; Jackson N. Krill, special agent in charge, U.S. Secret Service, Philadelphia; J. R. Thexton, superintendent of safety, Lackawanna; and G. A. Callahan, manager of protection services, New Haven.

Dr. L. K. Sillcox, honorary vice-chairman of the board of the New York Air Brake Company, will speak on "Fast Freight on Flats" before the **Car Foremen's Association of Chicago,** on May 9, at the LaSalle Hotel.

The **Chief Clerks Association of Washington, D.C.,** toured the Safeway Stores distribution center at Landover, Md., following its regular weekly meeting April 21.

Competitive Transport

Congress Gets AAR Road Views

Association says primary responsibility for financing highways should be left to states

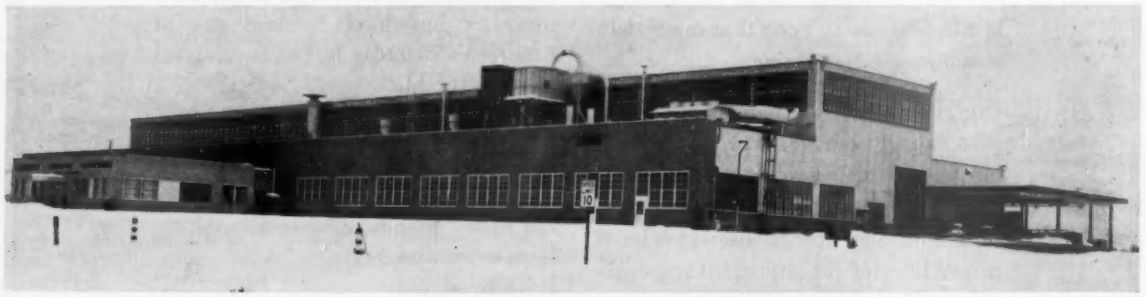
The Association of American Railroads has urged Congress to leave primary responsibility for financing highways with the states, which "are in the best position to develop user charges soundly based on vehicle weights and mileage traveled."

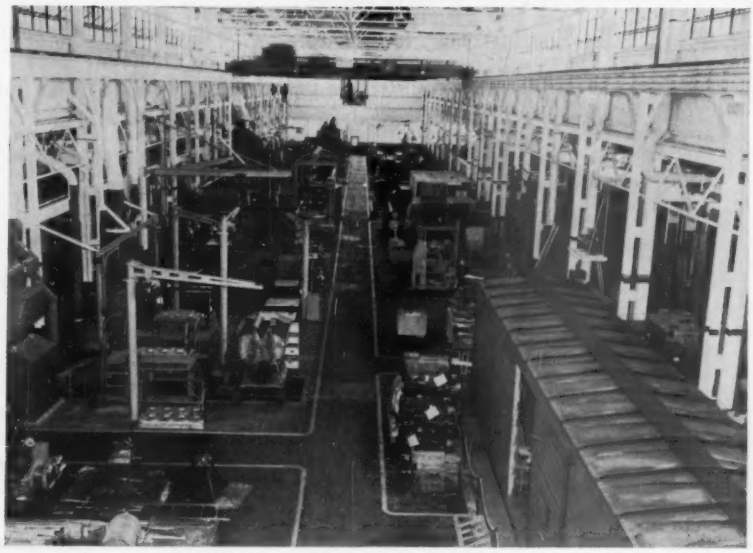
The advice was embodied in the association's presentation to the Roads Subcommittee of the Senate Committee on Public Works, which is considering pending highway proposals, including President Eisenhower's program. The presentation was a statement by Burton N. Behling, economist of the Bureau of Railway Economics.

User Charges—Unless "adequate and properly graduated" user charges on heavy vehicles are provided for in highway improvement plans, private automobiles and other light vehicles "will continue to pay more in proportion to their use of highways than big trucks," the statement said.

It went on to emphasize that the AAR does not question the need for good roads—its concern is "with sources and methods of their financing." At the same time it also said that, if the federal government is to participate substantially in the financing of highway programs, a federal user charge structure should be developed with graduated payments for heavier vehicles.

State Job—"Because states have the responsibility for controlling the use of highways, they should be responsible for their financing also," the AAR continued. "If the federal government can raise funds from highway users, so likewise can the states, and they can do it with proper regard for highway cost responsibilities and varying conditions. Rather than increasing it further, as current proposals suggest, federal aid should be reduced to the minimum which is really necessary to further the develop-





THIS NEW BRANCH PLANT was opened by the Electro-Motive Division of General Motors Corporation at North Salt Lake, Utah, April 13. One of seven E-MD factory branches strategically located throughout the country, it provides 54,000 sq ft of floor space. It will be used as a parts distribution center, and for re-manufacturing, to "new component" standards, by original factory production-line methods, diesel engines, traction motors, generators and control apparatus.

A 118 Year Old Company Changes its Name

AMERICAN LOCOMOTIVE COMPANY is now

ALCO PRODUCTS, INCORPORATED

Why this change in a name so widely recognized and long established?

To our many employees and customers —those who know us best—the change is a logical one . . . one that many felt was a long time coming.

Our company has expanded its activities and diversified its products until our former name applied only to a part of our business. It no longer represented our new operations, which have grown beyond our important responsibility as a locomotive supplier.

Look at last year, for example . . .

In 1954, we introduced 18 new products for the chemical, petroleum, power, railroad, and atomic energy markets.

That alone underscores the obvious fact that we are no longer a specialty company but have become one of America's broadly based industrial manufacturers.

So today, this new name has been adopted to reflect the vigorous new company that stands behind it. To our many friends, of course, we have been known for years as "Alco"—now it is official.

And we shall continue to produce traditional "Alco" quality in our new as well as our long-established product lines.

ALCO

ALCO PRODUCTS, INCORPORATED

FORMERLY AMERICAN LOCOMOTIVE COMPANY

New York, N. Y.

Sales offices in all principal cities. *Manufacturing plants* in Schenectady, Auburn, and Dunkirk, New York; Latrobe, Pennsylvania; Chicago Heights, Illinois; Cincinnati, Ohio; and Beaumont, Texas. *Sales Representatives* throughout the World

STEPPED UP RESEARCH and testing activities of the Southern Pacific have been centralized in a newly created Department of Research and Mechanical Standards (*Railway Age*, April 11, page 13). The road's original research laboratory, at Sacramento, has been enlarged and modernized, as shown above, to serve as the center for chemical and physical analyses and material inspections and tests for all SP lines west of El Paso. Laboratories at other points will be primarily concerned with testing diesel locomotive parts, fuels and lubricants.

ment, to the extent actually required, of integrated highway programs among the states.

"Pouring additional federal funds into highways could not be a sound alternative to adequate user charges upon the heavy vehicles and effective steps to protect existing facilities against abuse by heavy freight vehicles which absorb excessive proportions of highway capacity and by their operations destroy highway facilities more rapidly than funds can be found to replace and improve them."

Untapped Source—The AAR termed user charges properly scaled between classes of highway users as "untapped sources of potential highway funds." It added that the primary reason why highway funds have not been available on a scale commensurate with requirements is that "states have been attempting futilely to provide adequate highways with user charges which are still geared largely to conditions as they existed back in 1940."

Since that year, the statement said, only 23 states have increased user charges on a typical heavy vehicle to any substantial extent, while the remaining states either did not change such charges, or reduced them, or increased them by less than 20%. As to motor fuel taxes, the AAR contended they cannot represent a fair and equitable highway user charge, because consumption of fuel does not increase proportionately with increasing vehicle sizes and weights.

ICC Won't Reconsider Frisco Truck Restrictions

The Interstate Commerce Commission has refused to reconsider a decision of December 7, 1953, which ruled that the Frisco Transportation Company, subsidiary of the St. Louis-San Francisco, must get out of the "all-motor" business on truck routes covering more than 250 miles.

The refusal was embodied in an order, dated April 4, which denied Frisco's petition for reconsideration. Granting of the petition was opposed by trucking interests, including American Trucking Associations.

This is the case—No. MC-89913 (Sub. No. 1 and related proceedings)—wherein the commission ordered restricted certificates substituted for unrestricted certificates held by Frisco on the basis of findings that the latter had been "inadvertently issued." (*Railway Age*, January 4, 1954, page 11.)

Supply Trade

Edwin T. Goree, field representative for Mexico of **Bucyrus-Erie Company,** has been appointed assistant sales manager, excavator distributors. **John H. Plehn** has rejoined the sales staff as a representative at Seattle.

John C. Elmburg, manager of **Fairbanks, Morse & Co.'s** Portland, Ore., branch, has been appointed assistant general sales manager, effective July 1, upon retirement of **Harry L. Hilleary. William F. Wahlenmaier,** electrical department manager, has been named to succeed Mr. Elmburg as Portland branch manager.

Willard A. Provost, eastern sales manager of **Kopp Glass, Inc.,** has been appointed assistant sales manager, at Swissvale, Pa.

The **Kerite Company** has appointed **Robert A. Young** as Pacific coast manager, to supervise its sales and engineering in that territory. Mr. Young will continue to operate his own established business in electrical power sales and engineering on the West Coast.

Stockholders of **American Locomotive Company,** at its recent New York annual meeting, approved a proposal to change the name of the 118-year-old concern to **Alco Products, Inc.** The new name was adopted to reflect the company's increasingly diversified operations.

Railroad Supply & Equipment, Inc., Clarks Summit, Pa., has been appointed sales, engineering and service representative for O-Cel-O cellulose sponge journal box packing, manufactured by O-Cel-O division of **General Mills Corporation.**

Buel M. Wallis has been appointed general sales manager of **Schield Bantam Company,** Waverly, Iowa. He was formerly general sales manager of the Adams division, **LeTourneau-Westinghouse Company,** Indianapolis.

Mon-O-Coach, Inc., Louisville, Ky., has appointed the following representatives to handle sales of its all-aluminum

ANTHONY C. FECHT, general manager of sales of Lewis Bolt & Nut Co., who has been appointed vice-president, sales.

PERCY R. KELLER, assistant general sales manager of the Budd Company, has been elected vice-president—railway sales, Eastern region, at Philadelphia.

THOMAS R. WAGNER, regional sales manager of the Budd Company at Chicago, has been elected vice president—railway sales, Western region, with the same headquarters.

trailer for off-track housing of maintenance forces: **J. B. Akers, Jr.,** DuPont Circle bldg., Washington, D.C.; **Harold L. Emerson,** 319 North Fourth st., St. Louis; **Ralph A. Corley, Jr.,** 30 Church st., New York; **Robert J. Wylie,** Pioneer bldg., St. Paul; **Russel E. Long, Mississippi Supply Company,** 80 East Jackson blvd., Chicago; and **Caesar Baldassari,** 420 Market st., San Francisco.

Joseph H. Bascom, executive vice-president and treasurer of **Broderick & Bascom Rope Co.,** has been elected president, succeeding **C. E. Bascom,** elected chairman of the board.

William C. Croft, executive vice-president of **Pyle-National Company,** has been elected president and a director. **Harold V. Engh,** whom he succeeds as president, asked to be relieved of his duties as chief executive officer, but will continue as a director. He will devote his full time to the **Turner Brass Works,** Sycamore, Ill., in which he has had an interest for many years.

Robert S. Stevenson, executive vice-president of **Allis-Chalmers Manufacturing Company,** has been elected president, succeeding the late **William A. Roberts.**

H. H. Warren, assistant manager of the New York sales office of **Electric Storage Battery Company,** has been appointed assistant sales manager of its Exide Industrial division, at Philadelphia.

Thomas J. McGinnis, assistant to general manager, Wood Preserving division, **Koppers Company,** has been named manager of the Pittsburgh district. He has been succeeded by **Ralph H. Bescher.**

Brewster-Raymond Company, 2048 West Third st., Cleveland, has been incorporated to engage in engineering and construction of new railroad sidings and rehabilitation of existing railroad tracks, switches, etc., for industrial plants in Ohio and nearby states.

Thomas W. Pettus has been elected executive vice-president of **Scullin Steel Company.** He was formerly vice-president of **American Brake Shoe Company** and was recently assigned to overall railroad sales (*Railway Age,* April 25, page 16).

Klasing Hand Brake Company has appointed the Industrial Sales division of **Sears, Roebuck & Co.** to handle national sales of Klasing hand brakes.

Stephen P. Murphy has been appointed district manager of **Paxton-Mitchell Company,** succeeding **Howard W. Dillon,** retired. Mr. Murphy was formerly associated with **Illinois Electric Porcelain Company.**

ODIS SMALL, JR., has been appointed railroad sales manager of Harnischfeger Corporation. He was formerly associated with the Electro-Motive Division of General Motors Corporation.

OBITUARY

Leland J. Lytle, 58, district sales manager of Barco Manufacturing Company, Shaker Heights (Cleveland), Ohio, died April 13.

Traffic

New Haven Establishes Credit Card System

A "charge-a-plate" credit card system for passenger travel was inaugurated on the New Haven May 1.

The new cards will be honored for rail or Pullman tickets purchased at any New Haven ticket office for travel on or via the New Haven to any destination; for meals and refreshments in dining and grill cars; and for baggage charges, except red cap fees. They also will be accepted for Hertz or Avis automobile rentals anywhere in the United States. They will be issued to any individual or company having a satisfactory credit rating, without advance deposit, upon completion of a simple application and after routine credit clearance.

RRs' Share of Freight Declining, NICB Finds

Railroads carried only 52% of all intercity freight in 1953, compared with over 75% in 1926, according to an analysis by the National Industrial Conference Board. The board found that competitive carriers have not only diverted traffic away from railroads, but have also captured more and more new products and new traffic routes of an economy that has been both expanding and shifting geographically.

The NICB analysis also shows that, although railroads have been able to retain their competitive advantage in transporting bulk commodities of low value per ton, such as coal, ore and coke, this concentration of freight tonnage among such basic commodities has made railroads particularly vulnerable to cyclical fluctuations in industrial activity. A recession as mild as that of 1954 brought about a 12% drop in freight carloadings. In 1953, coal accounted for 17% of total carloadings; coke and ore for 10%. In 1954, carloadings of coke dropped 39%; ore 33%; and coal, 12%. Together, these declines overwhelmed a 4% increase in movement of grains, and relatively small decreases in the movement of other commodities.

Inroads on Railroads—In 1939, according to the NICB analysis, railroads moved 338 billion ton-miles of goods, amounting to 63% of total freight traffic, while water carriers transported 17%; pipelines, 10%; and motor trucks another 10%.

In the next two years, truck transport

increased more than 50%, to 81 billion ton-miles, but the outbreak of war and resulting fuel and tire shortages temporarily halted the rapid growth in motor truck traffic. By 1943, railroads were moving 734 billion ton-miles, more than 70% of all freight.

At the end of the war, however, demands for railroad freight service dropped sharply, while facilities and traffic of competing carriers multiplied. In 1946, railroad ton-miles fell below 1942, while motor truck traffic quickly recovered to its prewar level, and pipeline shipments, through facilities installed during the war years, were up 50%.

Over the postwar years the trend of railroad freight traffic was slightly downward. In 1953, the 614 billion ton-miles of railroad freight constituted only 52% of total shipments. However, ton-mileage of freight hauled by truck was four times greater than prewar, and accounted for 17% of all freight traffic. Ton-miles of liquids and gases moved through pipelines was three times greater than prewar, and accounted for 14% of total traffic.

Diversion of Rail Freight—The Conference Board found that railroads have not only yielded an increasing share of total freight traffic to competing carriers, but have also lost ground in the case of two important freight classifications—"animals and products" and "less-than-carload" freight.

In 1953, only 13.8 million tons of animals and products were hauled on railroads, compared to 15.0 million in 1939. The competition of trucks for this highly profitable type of freight traffic was a major cause of the decline. In 1933, trucks accounted for 44% of cattle receipts in 65 important markets; by 1940, their share had risen to 51%; and by 1952, it had reached 76%. The same diversionary trend hit the railroads in receipts of other livestock and animal products.

Loss of lcl freight has been even more striking, and again truck competition has been a major factor. In 1953, only 8.3 million tons of lcl freight originated on railroads, compared with 14.9 million tons in 1939.

Equipment & Supplies

LOCOMOTIVES

Class I Roads Install 306 Locomotives in 3 Months

Class I railroads installed 306 new locomotive units, including 303 diesel-electric and three electric units, in the first three months of 1955, the Association of American Railroads has announced. In the first quarter of 1954, Class I railroads placed in service 421 new locomotive units, which included 420 diesel-electric units and one gas turbine-electric locomotive.

On April 1, Class I railroads had on order 428 new locomotive units, including 421 diesel-electric and seven electric units, compared with 365 units on order April 1, 1954, which included 341 diesel-electric, 10 electric and 14 gas turbine-electric units.

The **Canadian National** has ordered one 2,400-hp "Trainmaster" general purpose diesel unit from the Canadian Locomotive Company.

The **Northern Pacific** has ordered 38 diesel-electric units costing an estimated $6,385,000. The Electro-Motive Division of General Motors Corporation will build 25 1,750-hp road-switchers; two 4-unit 7,000-hp freight locomotives; three 1,200-hp switchers; and one extra 1,750-hp "A" freight unit. Alco Products will construct one 1,600-hp road-switcher. Delivery is scheduled for the third quarter of this year.

PASSENGER CARS

The **Canadian National** has ordered 20 baggage cars from the National Steel Car Corporation for delivery late this year.

TWO NEW TUGBOATS—"Philadelphia" (left) and "Chicago"—have joined the Pennsylvania's New York harbor fleet. The 1,600-hp diesel-electric vessels were built by the R.T.C. Shipbuilding Corporation, Camden, N.J., and powered by Cleveland Diesel Engine division of General Motors Corporation. Designed to handle coal barges between South Amboy, N.J., and other parts of the harbor, each tug is 110 ft long, and has a 27-ft beam, 13-ft draft, radiotelephone, sleeping quarters for 12 men, and dual towing engines of a new type by which each of the tugs can maneuver barges on two tow lines independently.

Rates & Fares

ICC Refuses to Save East's Streamlined Rule 10

Affirming decisions of its Division 2, the Interstate Commerce Commission has ordered eastern railroads to abandon the "streamlined" version of Rule 10 by June 15.

The requirement is part of a commission plan to put on a parity basis the all-commodity rates (used principally by freight forwarders) which are published by railroads and motor carriers operating in eastern territory. "Streamlined" Rule 10 is that version which permits use of the mixing rule in combination with all-commodity rates, i.e., it provides that commodities rated lower than the all-commodity basis may be included in a mixed carload taking the all-commodity rate and charged for at the lower rate.

Aside from this rule change, the commission left the railroad all-commodity rates undisturbed. As to the truckers, its order included a minimum-rate requirement which will raise their rates to the rail level.

The commission dealt with the situation in one report, No. MC-C-1331 being the title case. Division 2 made separate reports in that case and in the rail case which was No. 31006 (*Railway Age*, September 27, 1954, page 8).

ICC Receives Replies To Roads on Ex Parte 175

The Interstate Commerce Commission received last week the replies of several organizations opposing the railroads' motion to make the 1952 Ex Parte 175 rate increases permanent.

Among these was a statement from National Coal Association which previously had asked that the ICC remove (*Continued on page* 68)

New Locomotives for Old

—at less cost than you think!

In one door a 7-year-old F3 that has delivered over a million miles of heavy-duty freight service.

Out the other a completely remanufactured locomotive that carries the performance rating of a new General Motors F9—*and is backed by the same warranty as a brand-new unit.*

That, in short, is the story of Electro-Motive's program for rebuilding and modernizing work-weary Diesels.

Utilizing the world's most modern locomotive manufacturing facilities, Electro-Motive brings old units up to the latest standards —*higher horsepower, greater tractive effort and reduced maintenance*—with a substantial return on investment!

For further information on Electro-Motive upgrading of old locomotives—write us or phone your nearest Electro-Motive representative.

ELECTRO-MOTIVE DIVISION · GENERAL MOTORS

La Grange, Illinois • Home of the Diesel Locomotive

GENERAL MOTORS LOCOMOTIVES

Highlights of F3 to F9 Locomotive Upgrading

UP TO 17% MORE POWER available for propulsion—hauls more tons as fast or the same tonnage faster. Longer engine life, reduced maintenance with new "C" crankcase.

LONGER LIFE TRACTION MOTORS—new moistureproof coils—short-time ratings eliminated.

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NEW SEALED GEAR CASE with stable lubricant—up to ten times previous performance.

NEW BRAKE RIGGING STABILIZER—insures better alignment of brake shoes for longer life plus greater safety.

9 regional warehouses and factory branches to serve you

WHY IT WILL PAY YOU TO USE BELL SYSTEM COMMUNICATIONS

You save money

With Bell System services and facilities, you get efficient and dependable communications at low cost. You are relieved of maintenance, depreciation and other costs of privately owned communications.

You get what you need

We furnish communications tailored to your exact needs. No more, no less. A change in number or type of circuits can be made any time to keep your communications in step with changing needs.

You get the best service

The Bell System is constantly developing new equipment, methods and techniques to improve your communications and keep them from becoming obsolete.

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The Engineer's Report

CASE HISTORY
RPM Delo Oil R.R.
LUBRICANT

Western Pacific R.R. Co.,
FIRM

Special oil maintains high average mileage record!

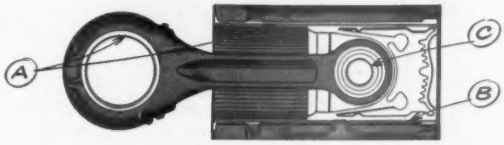
1776 CYLINDER ASSEMBLIES make up the 111 diesels in road freight service on the Western Pacific R.R. These units, as well as all passenger locomotives on the line, are lubricated with RPM DELO Oil R.R. Maintenance records of several years on freight locomotives show following average actual miles on parts removed for any reason: wristpins and bushings, 413,675 miles; pistons, 376,018 miles; liners, 354,101 miles. A representative assembly is shown in insert, just as it appeared after 476,497 actual freight miles. Note cleanliness of parts and free rings—typical of Western Pacific's experience with RPM DELO Oil R.R., the standard on the line since 1949.

FOR MORE INFORMATION about petroleum products of any kind or the name of your distributor, write or call any of the companies listed below.

RPM DELO LUBRICATING OILS

TRADEMARK "RPM DELO" REG. U. S. PAT. OFF.

How RPM DELO Oil R.R. prevents wear, corrosion, oxidation



A. Special additive provides metal-adhesion qualities...keeps oil on parts whether hot or cold, running or idle.

B. Anti-oxidant resists deterioration of oil and formation of lacquer...prevents ring-sticking. Detergent keeps parts clean...helps prevent scuffing of cylinder walls.

C. Special compounds stop corrosion of any bushing or bearing metals and foaming in crankcase.

STANDARD OIL COMPANY OF CALIFORNIA, San Francisco 20 • STANDARD OIL COMPANY OF TEXAS, El Paso
THE CALIFORNIA OIL COMPANY, Perth Amboy, New Jersey • THE CALIFORNIA COMPANY, Denver 1, Colorado

If you are using an

ECONOMY DIESEL FUEL

consider the advantages of DuPont FOA-2

It is now possible for petroleum refiners to stabilize their lower quality stocks to obtain an economy diesel fuel . . . with Du Pont FOA-2.

Most diesel fuel suppliers, who are already aware of your quality and economy needs, know about Du Pont FOA-2 and its double-action stabilizing and dispersant effects. Chances are they will be able to meet *your* quality and price specifications with this unique additive.

Leading railroads report

Many leading railroads are now using fuels containing Du Pont FOA-2, with excellent results. They have found, after careful testing, that they can efficiently operate diesel engines on lower grade fuels —which have been well-stabilized by using Du Pont FOA-2—without harmful effects and without creating maintenance problems.

Good filterability

Because of its excellent dispersant action, FOA-2 improves the filterability of diesel fuels. Thus, it helps you to eliminate most injector-sticking and filter-plugging problems.

Non-sparking

Being an *organic, non-metallic* additive, Du Pont FOA-2 does not aggravate the problem of exhaust stack sparking.

If you are not now realizing all the advantages of diesel fuels containing Du Pont FOA-2, we suggest you talk over its use with your refiner. Or, if you would like descriptive literature and samples for testing in your own fuel laboratory, send your request to any Du Pont Petroleum Chemicals Division regional office listed below.

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For maximum service life, standardize on genuine Wabco products—the renewal parts with the built-in pedigree.
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NEW MOVIE AVAILABLE entitled, "AT THIS MOMENT"—showing a vivid story of modern railroad progress. Length 26 minutes, on 16 mm. color sound film. For use of film write: United World Films, Inc., 1445 Park Ave., New York or Association Films, Inc., 347 Madison Ave., New York.
WESTINGHOUSE AIRBRAKE COMPANY
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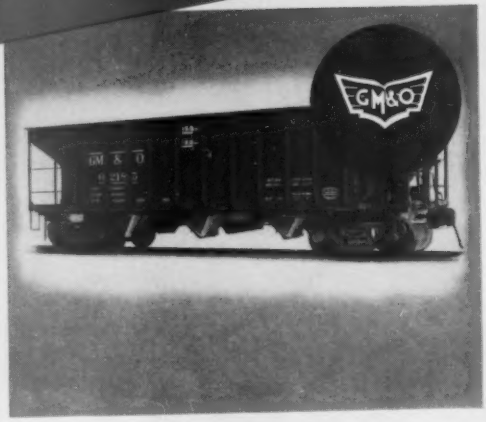
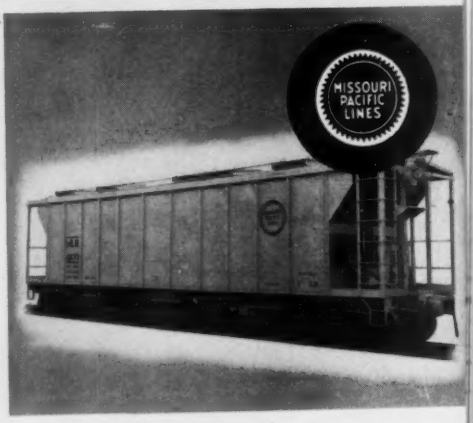
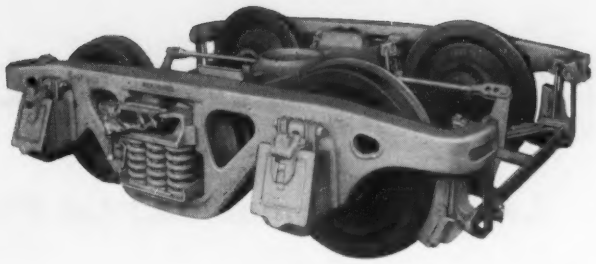
For New Ore

AND NOW... RESERVE MINING COMPANY CHOOSES A-3's FOR 350 ORE CARS
QNSL ORDERS 850 ADDITIONAL CARSETS







Cars

Specify smooth-riding Ride-Control® Trucks that are tailor-made for your operations!

Rarely will you find two ore-hauling problems that are entirely alike. That's why practically all major ore shippers specify Ride-Control Trucks. They know that ASF is the only truck-design specialist in a field where specialization insures the *right equipment for the job.*

Heavy loads and severe grades present many problems. For example, the car must be compact—requiring a truck with carefully designed members and often with odd-size wheel base. Brake design, whether clasp or single shoe, must be *integrated* with truck design . . . a problem on which ASF's combined staff of truck and brake engineers can offer you constructive help. And last but not least, the truck has to ride smoothly so that the car will *work together with the roadbed,* instead of pounding itself into the repair shop.

In short, by any yardstick you use—past experience or present engineering facilities—ASF is in a unique position to design the truck that's right for *your* requirements!

RIDE-CONTROL, A-3

Application based on ASF experience with ore car truck design

Railroad	Carsets
Bessemer & Lake Erie	1,200
Chicago & North Western	300
Duluth, Missabe & Iron Range	5,500
Electro Metallurgical	41
Great Northern	700
Gulf, Mobile & Ohio	100
Louisville & Nashville	252
Soo Line	100
Northern Pacific	600
Orinoco Mining	560
Quebec, No. Shore & Labrador	1,200*
TOTAL	~~10,953~~ New Total 11,753

*Made in Canada

ASF

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How is the *new*

Let the Chairman and the President tell you

After nearly a year in the New York Central our optimistic view of its potential is undiminished, its economical water level route, running through the industrial heart of the Nation as it does, and serving an area densely populated by almost 80 million people. Details of its physical plant and operations leave much to be desired, but they are susceptible of analysis and correction, tedious and costly though the process may be.

Less easy is it to find the answer to certain intolerable terminal problems, particularly in the East, where the services with which we compete are publicly operated, pampered or subsidized. But studies are well under way and we must find a solution. The Nation's transportation necessities can no longer endure a situation so lopsided that a mainline rail operation, upon which so many employees, shippers and passengers depend, is skimped and sacrificed to the extravagant convenience of a few commuters who have a liberal choice of substitute service.

• • •

Why is it, when the Federal Government and our States and Cities are struggling with unbalanced budgets to maintain facilities and services, gratis, for barges, planes, trucks, buses and automobiles, so little attention is given to the direct recovery of these costs in user charges?

These long-brewing problems or regulation and subsidy as they unequally affect the railroads and their competitors are at last coming to the attention of the Nation's President and its Congress; and well they may, when the ironical contrast is considered that our uncertain allies, recipients of our bountiful relief, to say nothing of our troops, are utterly dependent upon our faithful though anemic rails, consistently leeched. Certainly, some may question the brains if not the sincerity behind our entire defense program so long as this inconsistency continues.

The New York Central is more fortunate than most railroads in having valuable real estate other than that used in its operations, mostly concentrated in the Park Avenue area of New York. Some has yet to be fully developed, particularly the long neglected air rights above the Grand Central Terminal itself, a vast area with as high a cubic foot value as any in the world. This presently unproductive site will be fully exploited as quickly as operating and other problems inherent in such a huge undertaking can be worked out.

The three hotels which your Company operates have been put under new management and a substantial increase in their net revenues is in early prospect.

• • •

Your more than 50 operating Companies and controlled subsidiaries are incorporated under the complex railroad laws of many States and Canada. Failure to more fully consolidate and integrate these vast properties has contributed to many unnecessary tax burdens, and operating and administrative duplications and wastes.

• • •

Your President, acting under the fullest authority, has virtually lived on the property for many months, giving his concentrated attention to costs. He has displayed extraordinary all-around executive qualities in all departments where they have been sadly needed. In his courage, determination and diligence he has uncovered and rooted out long entrenched inefficiencies, thus more than meeting your Board's highest expectations. Far sooner than we had hoped, his attention can be turned to those innumerable details which go to create fine service.

To him alone is due the credit for what will, we believe, one day be recorded as one of the most expeditious jobs of corporate rehabilitation in history. Him we have to thank for the fact that directors so soon considered it sound and conservative to put your stock upon a $2 annual basis when on January 11 it declared a dividend of 50¢ payable on March 10. Not since 1931 has your Company paid a regular quarterly dividend.

• • •

Just as ownership is the best incentive to *good husbandry*, so is open competition the key to the achievement of the lowest prices for high quality in all those commodities and services which your company buys in its day-to-day operations. Nothing is more discouraging to the morale of an organization dedicated to sound operations, than to see preferential relationship at the top level between the company and its bankers, suppliers or concessionaires.

In conclusion, we wish to express to you our recognition of the fine way in which our employees generally have co-operated with the President; and for the generous tolerance of our shippers and passengers for our service which leaves much to be desired. To all we pledge our best efforts to make the New York Central the most dynamic unit in a newly expanding railroad industry.

Robert R. Young

CHAIRMAN OF THE BOARD

BOARD OF DIRECTORS

William P. Feeley	Alfred E. Perlman
R. Walter Graham, Jr., M.D.	Eugene C. Pulliam
Allan P. Kirby	Sid W. Richardson
William H. Landers	Earl E. T. Smith
Frederick Lewisohn	Daniel E. Taylor
Richard M. Moss	Orville Taylor
Clint W. Murchison	Robert R. Young

Lila Bell Acheson Wallace

INCOME AND EXPENSE ITEMS	1954		
	1st 6 Months	*2nd 6 Months*	*Full Year*
Operating revenues	$355,647,385	$353,082,577	$708,729,962
Operating expenses	313,400,114	282,821,775	596,221,889
Taxes	27,516,321	28,363,824	55,880,146
Equipment and joint facility rents—net	11,764,222	11,828,744	23,592,966
Net railway operating income	2,966,727	30,068,235	33,034,962
Other income—net	13,898,668	9,579,281	23,477,949
Fixed charges	23,567,251	23,758,151	47,325,402
Net income	(6,701,856)D†	15,889,365	9,187,509
Operating ratio	88.12%	80.10%	84.12%
Return (net railway operating income) on depreciated investment	0.3%	1.4%	1.7%

†*Deficit*

New York Central doing?

(Excerpts from the Annual Report*)

When your new management took office we faced an emergency situation in the fast deterioration of your Company's cash position. The railroad had started 1954 with cash and temporary investments of $59,940,600. By the end of June this was down to $32,970,500 and the situation was getting worse. With no current cost controls to work with, the prospects of further rapid deterioration demanded immediate and decisive action to control expenses. It was necessary to live out on the railroad to observe firsthand its operations and institute new methods wherever inefficiency could be detected. That such actions succeeded is shown by the fact that on December 31, 1954 cash had increased to $62,429,500.

On a net income basis, the railroad reported a deficit for the first six months of 1954 of $6,700,000. That was really only half the story of its earnings status; for in the first months of the year, millions had been collected by the Central in dividends from subsidiaries, though normally such dividends have not been paid until the closing months of the year; millions had been spent on maintenance which did not show in the income statement because on the books these expenditures were to be spread out over the remainder of the year; and certain charges and accruals which normally would have been included had not been included.

Largely through speedy control of expenses and improved efficiency the unfavorable earnings trend was reversed. Although railway operating revenues in the last six months of the year were actually less than in the first half, not only was the inherited deficit wiped out, but we ended 1954 with net income of $9,200,000.

I cannot overemphasize the importance of establishing cost controls so that we will have them on a current basis.

• • •

*Would you like a copy of this annual report? Write to: Secretary, New York Central Railroad, 230 Park Ave., New York 17, New York

Your Company has had no personnel records worthy of the name. Those it did have lacked the information any company needs if it is to utilize its employees to the best advantage. We are concentrating on the compilation of such records. We have also started wage evaluation studies and we have prepared incentive and bonus plans, the latter explained fully in the proxy statements you will receive. Because the employees of any company are its greatest asset, we are laying plans for an extensive personnel program which will make for better selection and training of our people.

• • •

Physical communications on your railroad have been sadly lacking. One of our early moves was to lease teletype equipment for yard-to-yard communications. This speeds up our knowledge of where cars are, speeds up their movement, saves us time and money, and permits us to let the shipper know currently where his shipment is located. The equipment has been completely installed in all our major yards. At the same time, equipment is being installed which will permit records from yard offices to flow into the Auditor of Car Accounts' office on punch cards, greatly reducing time and labor and giving us better control over our per diem charges and our services to our customers.

Central's yards and terminals, even its newest ones, are out of date, and there has been wasteful duplication of both yards and shops. Just as your Company's complex corporate structure has never been integrated, neither has its physical plant. We have started the process of consolidation. Many yards have been closed down and the jobs they performed absorbed by others. All are under study. The railroad had too many shop facilities, a heritage based on the old concept of railroad operations by steam power—a concept made obsolete by the modern Diesel locomotive. We have closed down many of these shops and are studying the situation further in the search for more economies. With fewer shops we require fewer stores and have been able to reduce our inventory to the lowest level in eight years.

We have undertaken a co-operative study with Carnegie Institute of Technology to determine the best location for our principal classification yards. When this is resolved we intend to make them the most modern in the country.

Electronic signalling is making it possible for us to reduce our track mileage with substantial savings in maintenance and taxes and we have already started this program. Yet we will be able to handle just as much business on a two-track modern railroad as we now do on four tracks.

The Diesel locomotive is a wonderfully productive and economic tool—if properly used. When we came on the property, Central's freight Diesels were being used only about half the time. We have increased the availability of our freight Diesels 25 per cent, and we have in service only 301 of our old steam locomotives. This means that our investment in motive power is working harder and is doing a better job for us.

The passenger service deficit has plagued your railroad, as well as the rest of the industry, ever since the end of the war and we are studying every phase of our passenger service to improve the revenues and reduce exorbitant costs. At the same time, one of our first moves was to start a co-operative study, with five other railroads, of new equipment based on modern concepts taking advantage of the most recent technological developments. As a result, several new trains are now being produced that will substantially reduce the weight and cost of passenger-carrying equipment per seat with a resultant reduction in both the first cost of these new trains and costs of operation. We are doing this so that the railroads can get back into the mass handling of passengers on an economical basis.

Alfred E. Perlman

PRESIDENT

New York Central Railroad

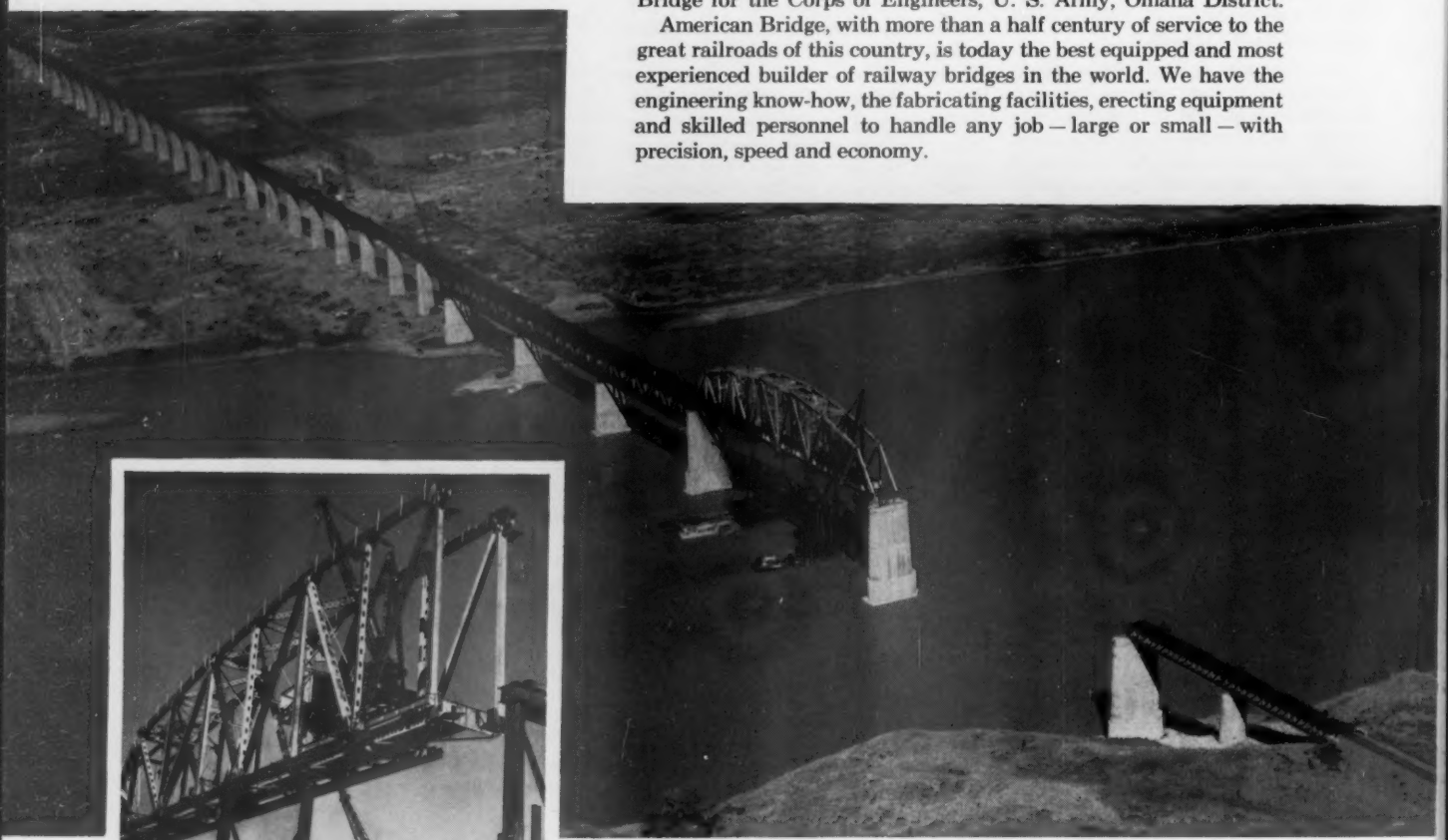
American Bridge builds 4,890-ft. bridge on THE MILWAUKEE ROAD relocation project

New bridge over Missouri River has two 372-ft. through-truss spans.

THIS single track bridge over the Missouri River near Chamberlain, South Dakota, is part of the relocation of the C.M. St. P.&P. tracks made necessary by the construction of the Fort Randall Dam and Reservoir. It replaces the old bridge about 9,000-ft. upstream.

The 4,890-ft. structure features two 372-ft. through-truss spans over the main channel which provide a 42-ft. clearance above normal pool. The long bridge also has three 240′ deck truss spans, twenty-five 120′ deck plate girder spans, and four 98′ deck plate girder spans. Approximately 6,200 tons of structural steel went into the bridge, all of which was fabricated and erected by American Bridge for the Corps of Engineers, U. S. Army, Omaha District.

American Bridge, with more than a half century of service to the great railroads of this country, is today the best equipped and most experienced builder of railway bridges in the world. We have the engineering know-how, the fabricating facilities, erecting equipment and skilled personnel to handle any job — large or small — with precision, speed and economy.



Plans and specifications by Corps of Engineers, U. S. Army.
Fabricated and Erected by American Bridge.
Work performed under the direction of W. G. Powrie, Chief Engineer, C. M. St. P. & P. Railroad.

AMERICAN BRIDGE DIVISION, UNITED STATES STEEL CORPORATION, GENERAL OFFICES: 525 WILLIAM PENN PLACE, PITTSBURGH, PA.

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AMERICAN BRIDGE

UNITED STATES STEEL

ADLAKE "Breather" Windows

are installed in new

SOUTHERN PACIFIC DOME LOUNGE CARS

Here's why American railroads use ADLAKE "Breather" Windows...

- Air tight seal and patented "breather" device assure passengers of unimpaired visibility.
- No maintenance required except routine washing.
- Broken panes can be replaced in yards.

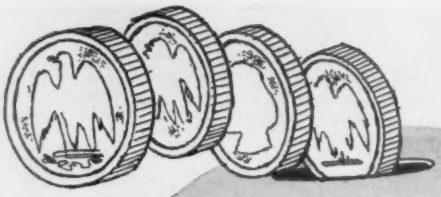
Let your passengers *see* the scenery you advertise...through Adlake "Breather" Windows!
For full information, write the Adams & Westlake Company,
1150 N. Michigan, Elkhart, Indiana.

Adlake TRADE MARK 98th year of serving the transportation and building industries

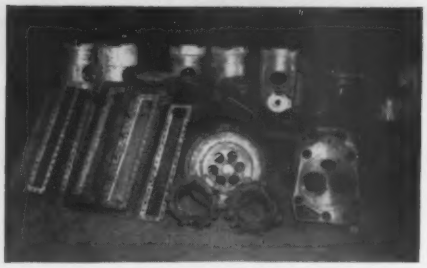
THE Adams & Westlake COMPANY

Established 1857 • ELKHART, INDIANA • New York • Chicago

Manufacturers of ADLAKE Specialties and Equipment for the Railway Industry



A HELIARC torch helps give an old coach a new look



You can use HELIARC welding to weld many parts in your shop

Save $$$

Use HELIARC Welding to Build and Rebuild

Many railroads use HELIARC welding to make and repair parts as diverse as aluminum pistons and zinc-lined motor bearings....*

Why? Because HELIARC welding makes excellent welds in most metals. Because HELIARC welding is economical, too. It saves them thousands of dollars each year!

Your railroad can save $$$, too. Ask LINDE for more information.

* Write for free booklets which describe how HELIARC welding is used by railroads and car builders.

"Haynes Stellite," "Heliarc" and "Linde" are registered trade-marks of Union Carbide and Carbon Corporation.

Here are some jobs where HELIARC *welding is used for fabricating and repairing:*

Aluminum	Diesel Pistons
Bronze	Traction Motor Bearings
Cast Iron	Diesel Heads
Copper	Sheet Fabrication
Everdur	Fuel Tanks
HAYNES STELLITE Alloy	Wearing Parts
Magnesium	Loading Bridges
Mild Steel	Coach Roofs
Stainless Steel	Diner Equipment
Tool Steel	Bits

RAILROAD DEPARTMENT

Linde Air Products Company

A Division of Union Carbide and Carbon Corporation

30 East 42nd Street UCC New York 17, N. Y.

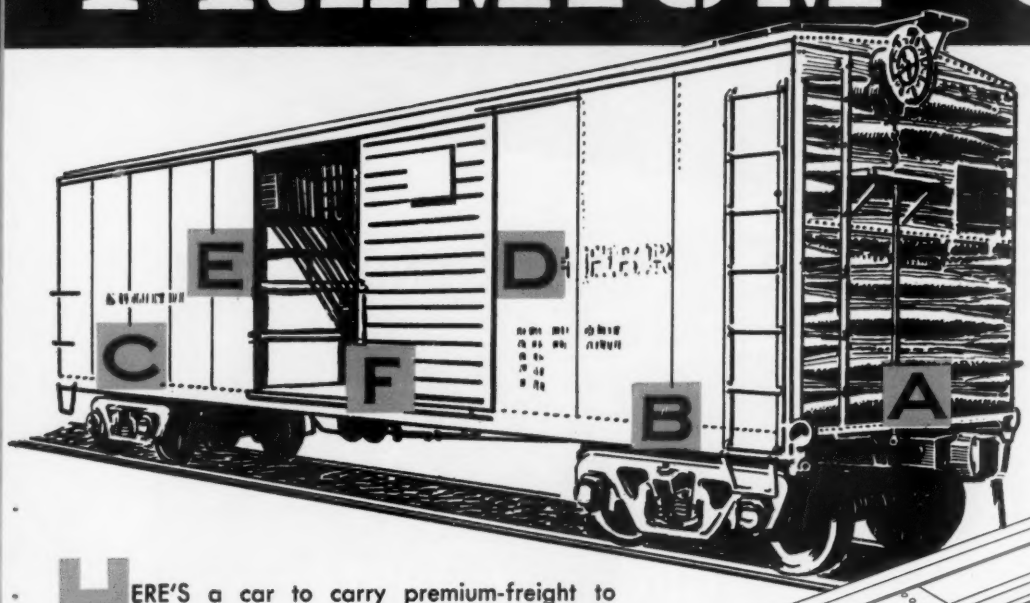
Offices in Other Principal Cities
In Canada: DOMINION OXYGEN COMPANY
Division of Union Carbide Canada Limited, Toronto

Supplying to railroads the complete line of welding and cutting materials and modern methods furnished for over forty years under the familiar symbol . . .

'PREMIUM' POWER *paid off!*

NOW IT'S THE

'PREMIUM' CAR

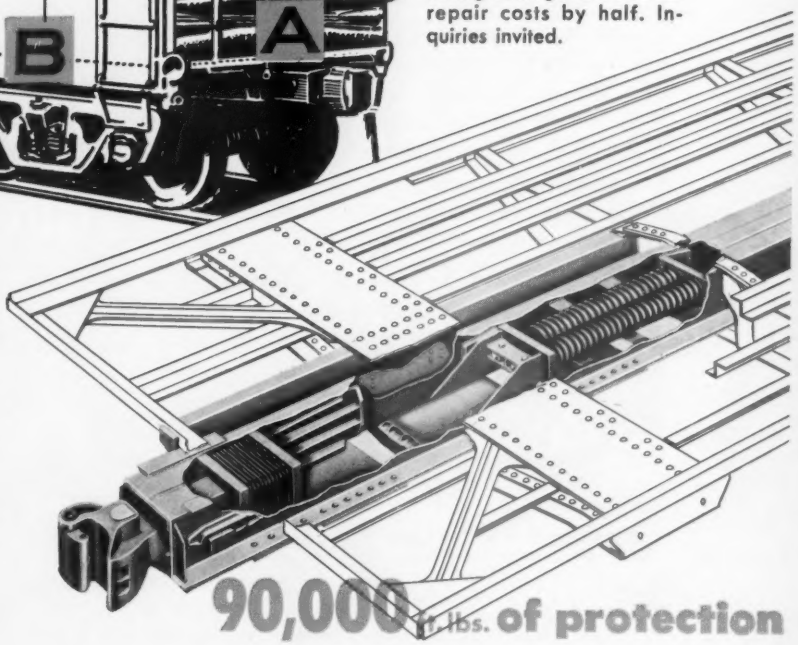


The only Cushion Underframe that eliminates free-slack, the Waugh High Capacity Cushion Underframe protects cars and lading at impact speeds far above the closing speed of conventional draft gears.

Studies indicate that this cushioning device will cut lading damage cost and car repair costs by half. Inquiries invited.

HERE'S a car to carry premium-freight to build traffic that pays a profit. Cushion Underframe equipped A it protects lading against excessive impacts. With improved trucks B and improved bearings C it is a smooth riding car. Extra wide doors D facilitate mechanical loading. Load retainers E reduce shifting and surfaced floors F are smooth and clean.

Every device is proven . . . the protection afforded actual. It is the freight car of tomorrow *ready today*.

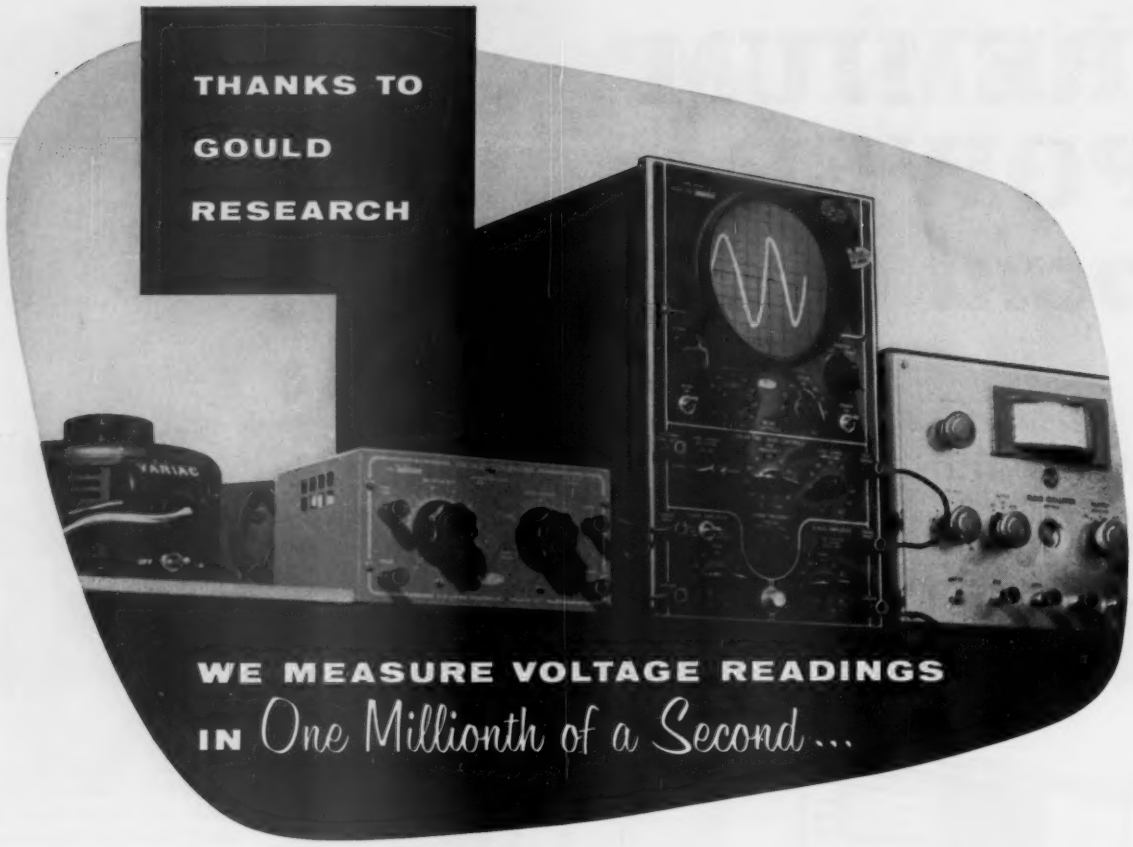


90,000 ft. lbs. of protection

WAUGH

EQUIPMENT COMPANY 420 Lexington Ave., New York 17, N. Y.

CHICAGO · ST. LOUIS · CANADIAN WAUGH EQUIPMENT COMPANY, MONTREAL



TO GIVE YOU GREATER BATTERY DEPENDABILITY!

Practically instantaneous voltage readings are made possible by the Oscillograph shown above. This important laboratory instrument has enabled Gould research technicians to 1) carry on the study of battery performance under instantaneous loads of fast circuit-breaker operation; 2) study the response of a battery to high charge rates; 3) attain more closely a perfect balance between grid design and active material.

This kind of basic research, in one of the finest battery research laboratories in the world, has given Gould Batteries service life and dependability thought impossible only a few years ago. That's why Gould Batteries are today's best battery buy. Specify GOULD!

For the full story on Gould research, send for Booklet 749.

America's Finest!
GOULD KATHANODE
BATTERIES
for Air Conditioning
and Car Lighting

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GOULD
Batteries

GOULD-NATIONAL BATTERIES, INC.
TRENTON 7, N. J.

"BETTER BATTERIES THROUGH RESEARCH"

Always Use Gould-National Automobile and Truck Batteries

Piggy-Back . . . That's Progress!

By Hungerford

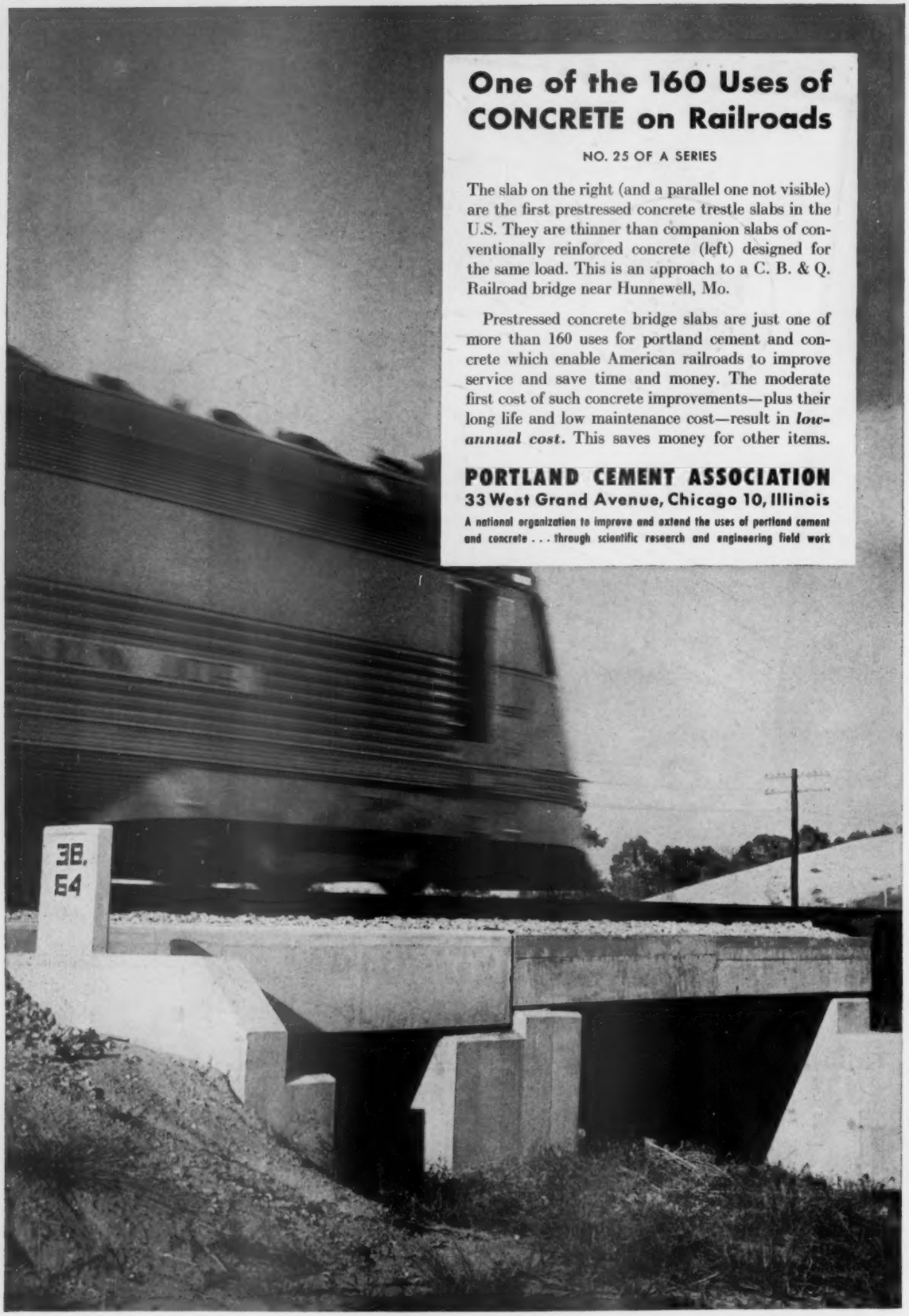
We will be glad to send you enlarged copies of this Hungerford cartoon (without advertising copy) for posting on your office and shop bulletin boards, or a cut for your company magazine, at cost.

Edgewater Steel Company

PITTSBURGH, PA.

Serving America's Railroads

ROLLED STEEL TIRES
with ROLLED STEEL WHEELS
AND DRAFT GEARS



One of the 160 Uses of CONCRETE on Railroads

NO. 25 OF A SERIES

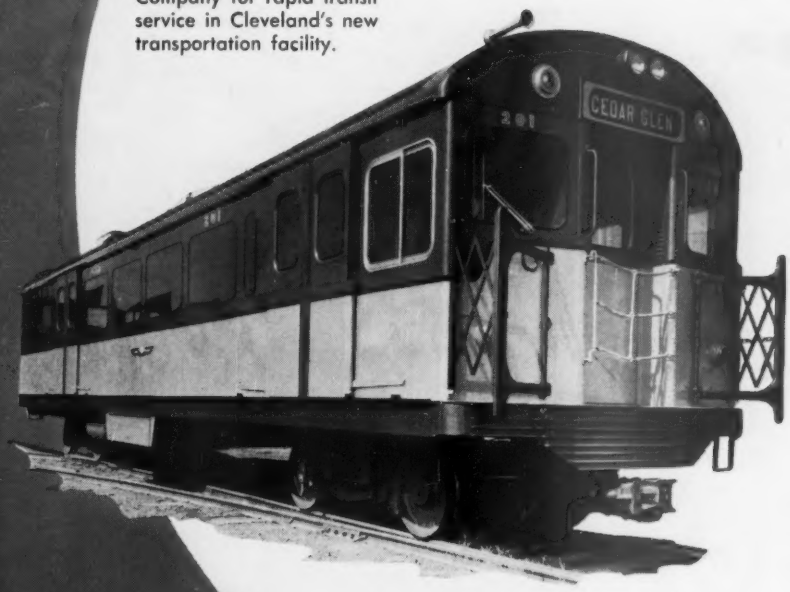
The slab on the right (and a parallel one not visible) are the first prestressed concrete trestle slabs in the U.S. They are thinner than companion slabs of conventionally reinforced concrete (left) designed for the same load. This is an approach to a C. B. & Q. Railroad bridge near Hunnewell, Mo.

Prestressed concrete bridge slabs are just one of more than 160 uses for portland cement and concrete which enable American railroads to improve service and save time and money. The moderate first cost of such concrete improvements—plus their long life and low maintenance cost—result in ***low-annual cost.*** This saves money for other items.

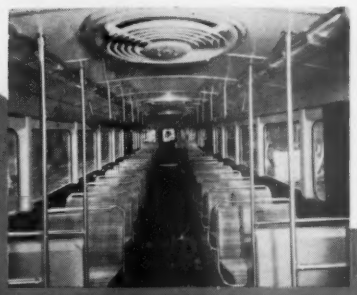
PORTLAND CEMENT ASSOCIATION
33 West Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

One of the 68 new cars built by the St. Louis Car Company for rapid transit service in Cleveland's new transportation facility.



New Cleveland Transit cars demonstrate "St. Louis Built" quality



Interior of one of the 55-passenger cars.

Features

- Forced ventilation provided by large roof fans having a capacity of 10,500 cubic feet per minute. This ventilating system is combined with electric heating for winter use—all thermostatically controlled to provide maximum passenger comfort.
- Double width doors to permit passengers to enter or leave in two separate lanes, thus speeding up loading and shortening the time at each station.
- Wide picture windows of safety heat-resisting glass.
- The entire unit is engineered for a spacious and pleasing interior — wide aisle space, extra wide comfortable seats facing toward the nearest exit, fluorescent lighting, pleasing and relaxing color scheme and appointments throughout—all for passenger comfort.
- Electric power for clean, smooth, rapid operation.
- Specially engineered rapid transit type trucks featuring silent automotive type hypoid gear drives.

St. Louis Car Company

St. Louis, Missouri U.S.A.

Executive Offices & Plant St. Louis · New York Office 165 Broadway · Detroit Office 424 Book Bldg. · San Francisco Office Monadnock Bldg · Washington Office Tower Bldg. · Cleveland Office 606 Williamson Bldg.

Courtesy
ACF Industries

YOLOY "E" STEEL

Used in New York Subway Cars

Yoloy "E" is one of Youngstown's High Strength Low Alloy family of steels designed to cut dead weight without sacrificing strength. Thinner sections can be used with safety. Resistance to shock, vibration and corrosion is improved, thus maintenance costs are reduced.

Freight or passenger cars made from Yoloy "E" steel will provide longer life and lower operating costs due to its high resistance to corrosion.

Youngstown's Service Engineering personnel are available, at your request, to discuss the merits of the Yoloy family of steels in solving your specific requirements.

Youngstown

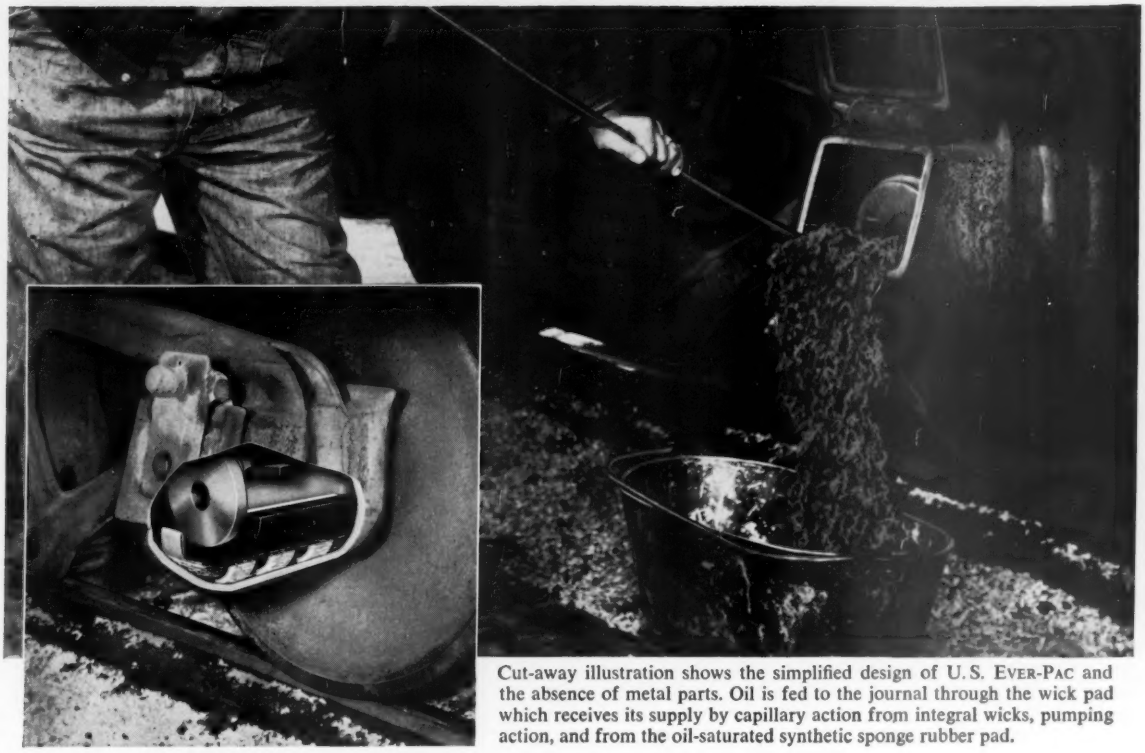
QUALITY
YOUNGSTOWN
SERVICE

THE YOUNGSTOWN SHEET AND TUBE COMPANY *Manufacturers of Carbon, Alloy and Yoloy Steel*

General Offices: Youngstown, Ohio - District Sales Offices in Principal Cities

SHEETS - STRIP - PLATES - STANDARD PIPE - LINE PIPE - OIL COUNTRY TUBULAR GOODS - CONDUIT AND EMT - MECHANICAL TUBING - COLD FINISHED BARS - HOT ROLLED BARS - BAR SHAPES - WIRE - HOT ROLLED RODS - COKE TIN PLATE - ELECTROLYTIC TIN PLATE - RAILROAD TRACK SPIKES

71% of hot boxes stem from waste packing (mostly "waste-grabs")



Cut-away illustration shows the simplified design of U. S. EVER-PAC and the absence of metal parts. Oil is fed to the journal through the wick pad which receives its supply by capillary action from integral wicks, pumping action, and from the oil-saturated synthetic sponge rubber pad.

The new, proven U. S. EVER-PAC* abolishes "waste-grabs"

Here at last is the Journal Lubricator that meets the railroads' chief demand:

Makes "waste-grabs" and other failures of waste packing impossible!

Interchanges with present equipment!
(No shop modifications, machining or additional labor costs)

No costly special oil seals required!

Low-cost initial installation!

Low-cost upkeep!

Easy determination of oil level!

Trouble-free service!

71% of hot boxes are directly attributable to waste packing, mostly "waste-grabs." Ever-Pac makes "waste-grabs" impossible!

U. S. Ever-Pac has A.A.R. approval for application to a specified number of cars which move in general interchange service (Docket No. L-129).

Years of intensive research and testing show conclusively that with U. S. Ever-Pac, a product of United States Rubber Company, a major cause of hot boxes can now be eliminated.

CONSTANT 3-WAY OIL DELIVERY!

(1) *Capillary action soaks up oil.* The hungry wick is oil-absorbent. The yieldable sponge rubber, a specially developed synthetic compound, provides a cushioned *upward* contact at all times, providing a controlled rate of *clean* oil distribution.

(2) *Pumping action.* Each vertical or lateral movement of the journal or journal box compresses the pad, thereby setting up a pumping action which pumps oil from the reservoir under the pad through holes to the distributing wick pad.

(3) *Sponge pad flexing.* Each movement of the journal or journal box flexes the *yielding* pad and makes the pad "breathe out" *even more oil*—because the pad retains 2 pints of oil *above and beyond* the amount of oil in the oil reservoir.

We only have space here to give you the highlights of EVER-PAC. Send for free booklet that tells full details. Write to address below.

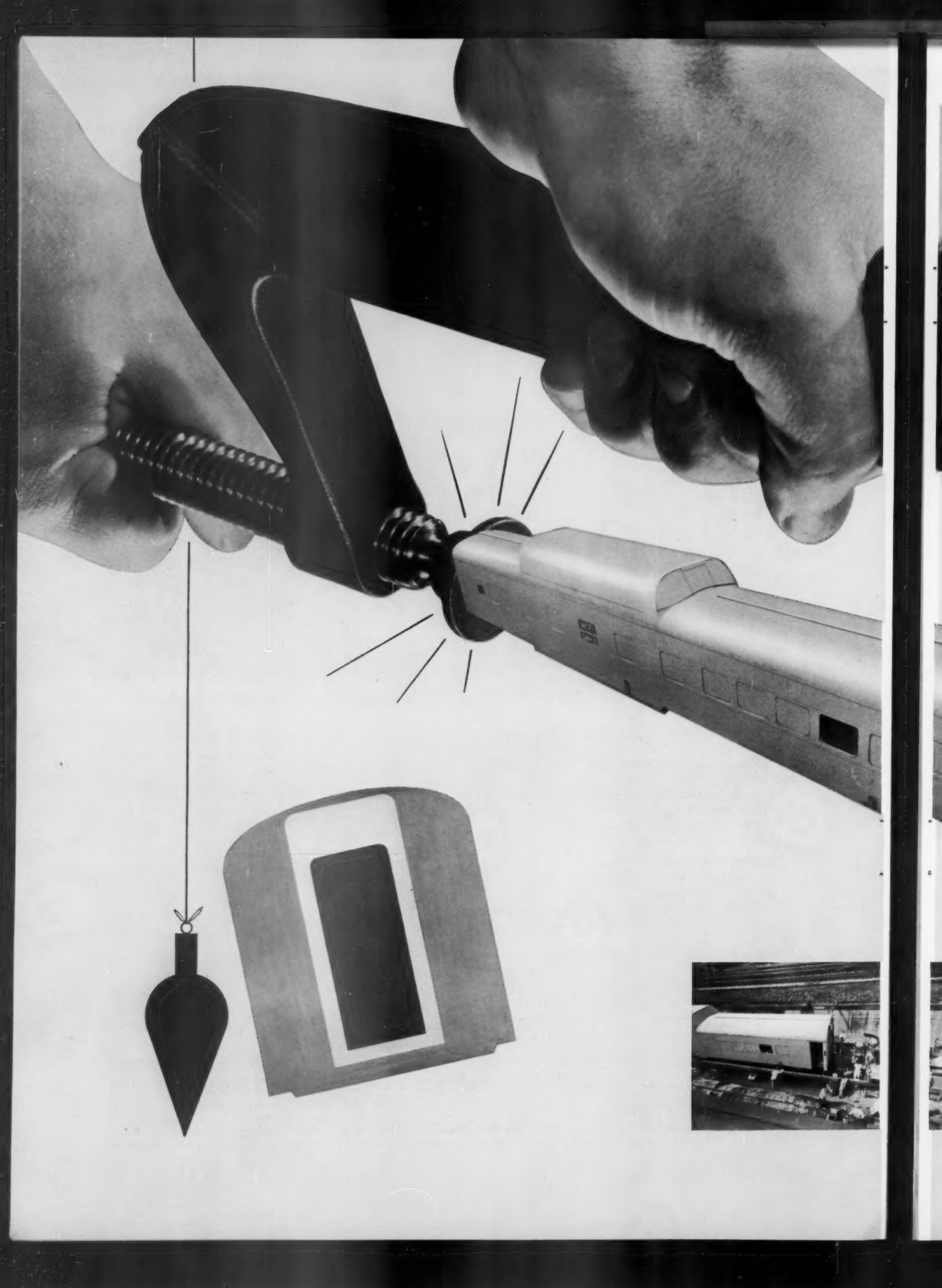
*Patented

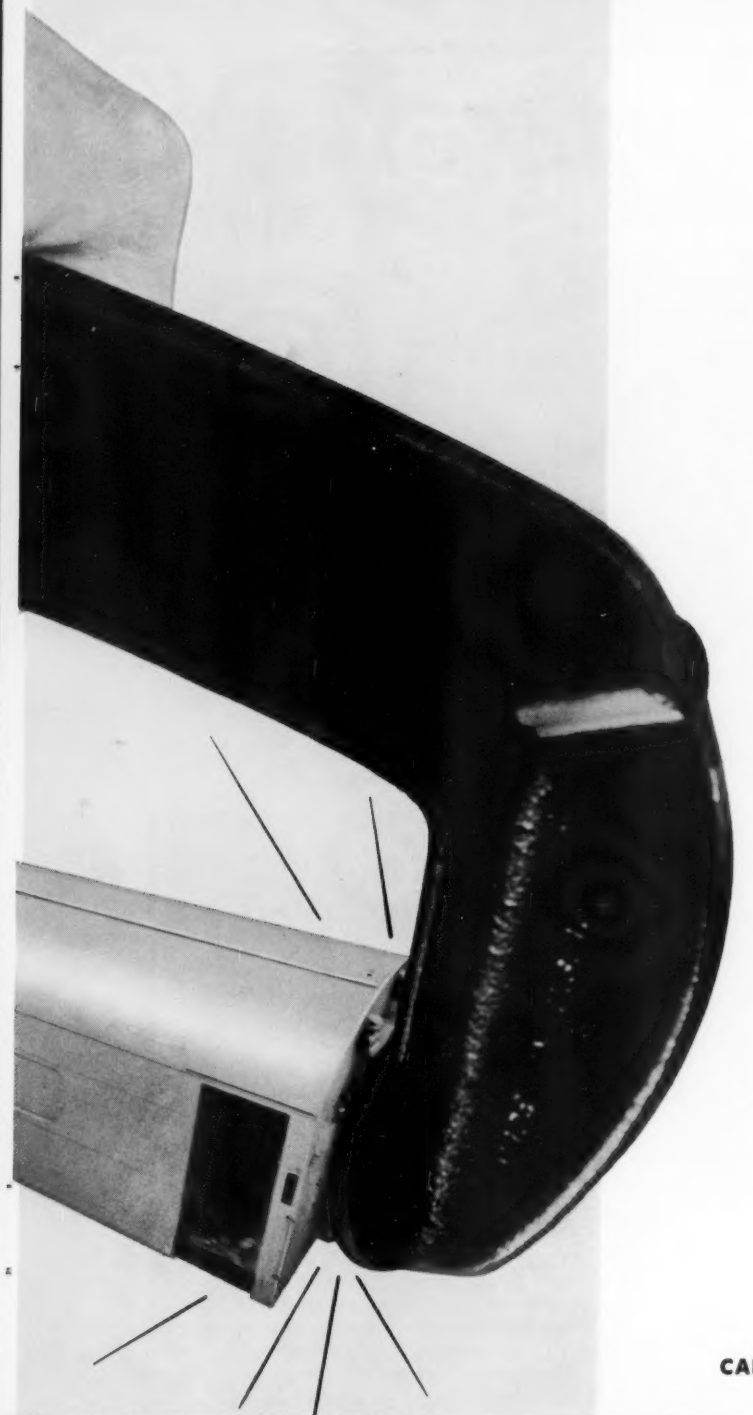
"U. S." Research perfects it..."U. S." Production builds it...U. S. Industry depends on it!

UNITED STATES RUBBER COMPANY

MECHANICAL GOODS DIVISION · ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Hose • Belting • Expansion Joints • Rubber-to-metal Products • Oil Field Specialties • Plastic Pipe and Fittings • Grinding Wheels • Packings • Tapes Molded and Extruded Rubber and Plastic Products • Protective Linings and Coatings • Conductive Rubber • Adhesives • Roll Coverings • Mats and Matting





AAR PREMIERS NEW "SQUEEZE" TESTING FACILITIES IN CHICAGO WITH TWO acf CARS

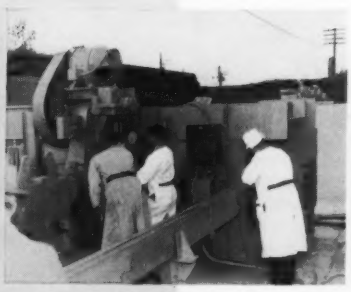
Two acf-built cars...an aluminum Dome Coach for the Union Pacific and a Baggage Car for the Santa Fe...were the FIRST cars to be "squeeze" tested by the AAR in their new Chicago Laboratories. These compression tests were supplemented by "lean" tests on the dome coach carried out at the acf plant in St. Charles. This was the FIRST aluminum Dome Coach subjected by a car builder to compression and lean tests under simulated operating conditions... where car deflections and tilt were recorded with mirror gages and other precision instruments.

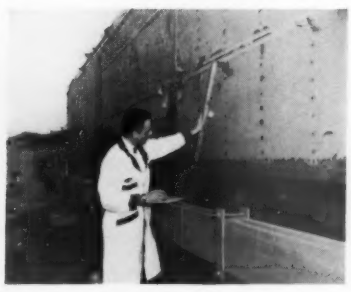
Test results were most gratifying to all concerned: AAR, Union Pacific, Santa Fe and, of course, acf. *Both* cars passed *all* tests with flying colors!

This is another example of how the right combination of engineering, facilities and experience in car building assures *in advance* a high level of performance. acf Industries, Incorporated, New York–Chicago–St. Louis–Washington–Cleveland–Philadelphia–San Francisco.

acf

CAR BUILDERS TO AMERICA'S RAILROADS





FACTS ABOUT Exide®

IRONCLAD® CAR LIGHTING AND AIR CONDITIONING BATTERIES

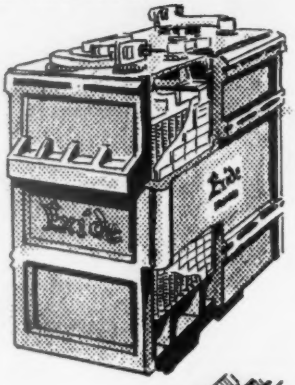
PASSENGERS LIKE THE GREAT BRIGHT ROADWAY! ... ASSURED BY EXIDES

WELL-LIGHTED, COOL COMFORTABLE CARS ATTRACT MORE PASSENGERS. MAKE SURE YOUR EQUIPMENT FUNCTIONS AT TOP EFFICIENCY WITH EXIDE-IRONCLADS. THEIR HIGH UNIFORM VOLTAGE, EXCEPTIONALLY LONG LIFE, AND LOW COSTS COMBINE TO MAKE EXIDE-IRONCLADS YOUR BEST BATTERY BUY— *AT ANY PRICE!*

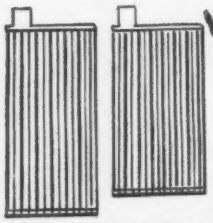
INTRODUCING ... THE NEW EH EXIDE-IRONCLAD!

TO SET A NEW STANDARD FOR RAILWAY PERFORMANCE, EXIDE INTRODUCES AN ALL-NEW ENGINEERED AND FIELD-TESTED CAR LIGHTING AND AIR CONDITIONING BATTERY. THE NEW **EH**—

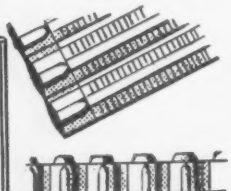
- DELIVERS 100% CAPACITY INITIALLY!
- ITS UNIFORM QUALITY ASSURES SUSTAINED HIGH CAPACITY DURING LONGER USEFUL LIFE!



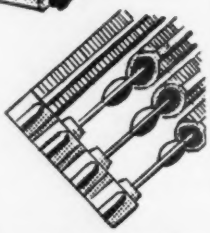
THE NEW EH HAS...



10% LONGER PLATES IN THE SAME SPACE YOU GET MORE POWER FOR A LONGER TIME!



POLYETHYLENE SLOTTED TUBES, AND SEALERS NON-OXIDIZING PLASTIC GIVES LONGER LIFE... PREVENTS SHORTS!



GRIDS WITH SILVIUM THIS NEW EXIDE NON-CORROSIVE ALLOY GIVES HIGH SUSTAINED POWER...LONGER LIFE!

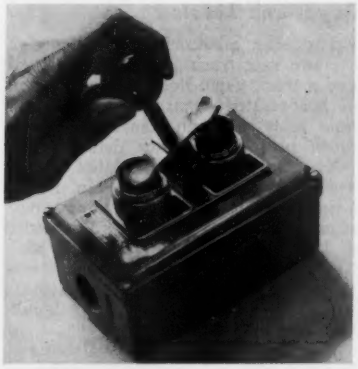
"ANY ICE TODAY, LADY?"

TRAVEL COMFORT IN 1876 WAS AIDED BY THE TRAIN BOY WITH HIS CAN OF ICE WATER. "AIR CONDITIONING" CAME THROUGH THE WINDOWS. LIGHTING WAS INADEQUATE AND DANGEROUS. IT'S ALL DIFFERENT NOW WITH HELP FROM DEPENDABLE EXIDES—MR. AVERAGE PASSENGER RIDES IN WELL-LIGHTED, COMFORTABLY AIR CONDITIONED CARS.

WRITE NOW, CALL YOUR EXIDE SALES OFFICE FOR SPECIFICATIONS OF THE NEW EH. *TEST* IT YOURSELF. YOU'LL FIND THE NEW EH EXIDE-IRONCLAD IS YOUR BEST POWER BUY *—AT ANY PRICE!*

Exide INDUSTRIAL DIVISION, The Electric Storage Battery Company, Philadelphia 2, Pa.

What's New in Products

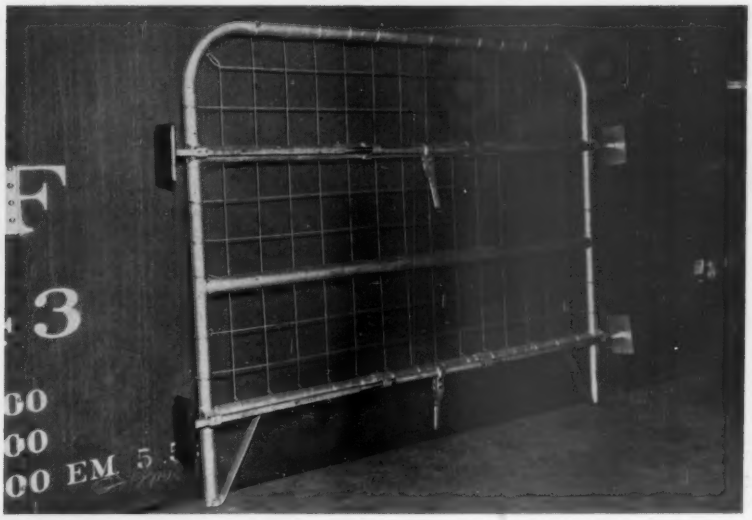


Pushbutton Station Accessories

Oil-Tite, a heavy duty pushbutton station, can now be equipped with three accessories that are said to increase durability, versatility and convenience. A flexible Neoprene cap has been made available to attach over unshrouded pushbuttons to give protection against entry of dust and assure operation when sheathed with ice and snow. In red or black, the caps fit over the pushbuttons after removal of the retaining ring.

A full stroke "Select-O-Push" operator has been teamed up with a double-pole contact block to make one compact unit to replace two single-pole, double-throw units. The circuit to be energized is selected by dialing the operator head left or right. One of the selective pushbuttons is illustrated.

A lever operator for the two-unit pushbutton stations permits precise operation whenever heavy gloves worn by the operators could cause faulty selection of the buttons. Movement of the operating lever to either of two positions causes a rocker arm to depress the proper button for completion of the circuit. On release, a positive spring return restores the mechanism to a neutral position. *Westinghouse Electric Corporation, P.O. Box 2099, Pittsburgh 30* •



Portable Bulkheads

A complete line of portable steel bulkheads for protection of lading in box and refrigerator cars, manufactured by the Pittsburgh Steel Products Company, are now distributed in the railroad field exclusively by the Brandon organization. The bulkheads are constructed of seamless steel tubing and cold drawn wire fabric welded at each intersection. A range of sizes accommodates all car widths. A sectionalized car can be provided at very low cost, the company points out. The Model R bulkhead (illustrated) is equipped with rubber friction grips which are pressed against car sidewalls by a ratchet-actuated screw mechanism at the center of the frame. It is said that this mounting will withstand severe impacts.

Car seals may be applied to the ratchet handle to control pilfering during unloading of stop-off cars. Upon request, the company will build special bulkheads to meet the needs of specific types of lading. *Brandon Equipment Company, 332 South Michigan ave., Chicago 4* •

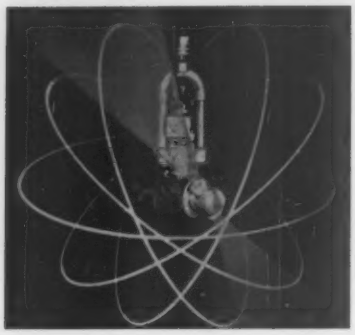
Portable Engine-Generators

A complete new line of Onan small electric generating plants, ranging in size from 500 to 2,500 watts, air-cooled and gasoline operated, reportedly will provide greater output at less weight. The heavy-duty 4-cycle engines are designed specifically for long-life generating plant service.

The new models are available in sizes of 500 and 750 watts, 60-cycle a-c for the AK Series and in 1,000 and 2,500 watts, 60-cycle a-c in the AJ Series. Battery charging units are available in sizes ranging from 500 to 1500 watts d-c. The one-cylinder AK engine has a $2\frac{1}{2}$ in. bore and $2\frac{1}{2}$ in. stroke. Rated at 1.85 hp (at 1,800 rpm) it is the prime mover for the 500-watt and 750-watt Onan-built generators. The AJ engine, with a $2\frac{3}{4}$ in. bore and $2\frac{1}{2}$ in. stroke, is rated at 2.75 hp at 1,800 rpm, and powers the 1,000-watt Onan generator. The AJ will deliver 5.0 hp at 3,600 rpm for the 2,500-watt models.

The self-excited, revolving armature type generators are entirely Onan designed and built. They are inherently regulated. Frequency regulation is 3 cycles maximum. Of drip-proof design,

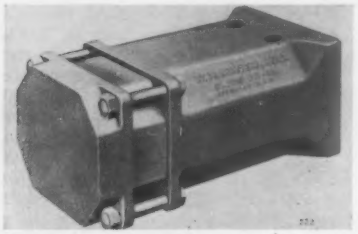
they have improved welded frame construction and are insulated for all-climate use *D. W. Onan & Sons Inc., Minneapolis, Minn.* •



Tank Cleaner

Cleaning the inside of tanks can be done from the outside with the Rotor-Jet. This compact, lightweight device delivers two powerful liquid streams over the inside surfaces of tanks of any shape. It can deliver high pressure hot or cold water and detergent cleaning solutions.

The unit can be handled by one man. It is lowered on its hoses through the manhole opening of the tank. The high pressure jets are powered by a venturi-injector and scrubbing rather than flooding results. The jet head is rotated with compressed air. This allows all the hydraulic power to be used for cleaning. Cleaning speeds are fully adjustable. Rotor Jet can be run at high speeds for light cleaning or rinse, and at slow speeds for heavy cleaning operations. It is available in three models with capacities from 600 to 6,000 gal per hr. *Sellers Injector Corporation, 1603R Hamilton st., Philadelphia* •



Rubber Draft Gear For Cars and Locomotives

The Miner Class FR-16 rubber draft gear, recently awarded AAR Certificate No. 26, is designed with sufficient initial compression to fill the gear pocket or yoke tightly for any plus variations. This initial compression insures permanence of positive initial action, thereby guaranteeing superior durability which is primarily related to tight attachments that will result in reduced wear on coupler carriers and draft keys. The FR-16 incorporating the Miner technique is said to insure a compression action which produces 25 per cent of its total capacity at half travel. The manufacturer believes the gear possesses the cushioning efficiency of any type draft gear, that is, the gear shall compress with such a rate of increase in resistance as will cause the lowest practical ultimate force in pounds. The Miner FR-16 with positive initial action will have much less final load in pounds than a gear which does not possess 25 per cent capacity at half travel.

The FR-16 is designed for application to the 24⅝-in. pocket and utilizes standard draft attachments. The gear is fully enclosed and self-contained. It can, therefore, be applied within the standard yoke and to the car at any railroad shop. Prior to shipment, the gear is reduced in length by the use of aluminum inserts placed underneath the heads of the four bolts, thereby permitting easy application to the draft gear pocket. No special tools or procedures are required to install the device.

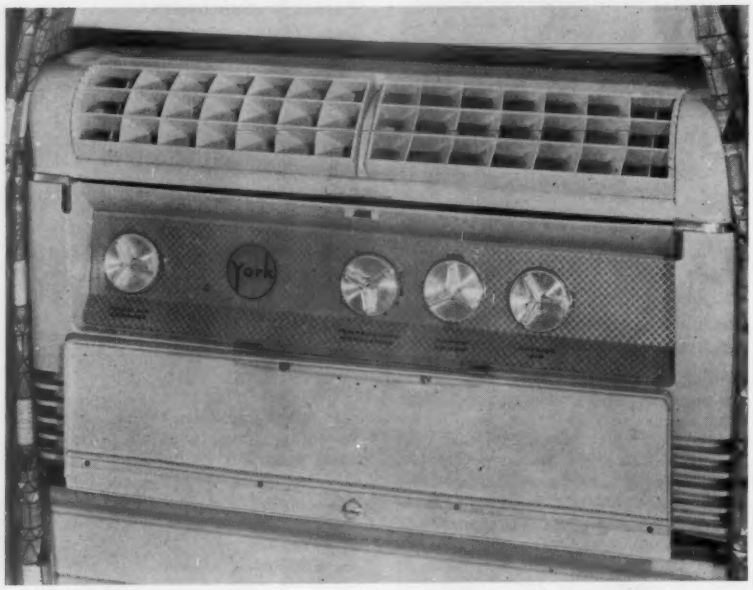
AAR laboratory tests showed the gear to have a capacity of 39,400 ft-lb at 2¾-in. travel. These results are realized with a maximum reaction of 475,000 lb, which is 10 per cent lower than the 525,000-lb column strength of a Type E coupler. *W. H. Miner, Inc., 209 South La Salle st., Chicago 4* •

Aluminum Track Gages and Levels

Featuring all-aluminum construction are two new track tools, a track level and a track gage. Both are constructed of heat-treated square extruded-aluminum alloy with an anodized natural finish to resist weather deterioration.

The track level is insulated and is available with either a 22½-in. radius adjustable vial or an AREA-approved adjustable top-plate assembly fitted with a 57½-in. radius barrel-ground vial. The elevation rod has ⅛-in. graduations from 0 to 7 in. and is adjustable up or down by releasing a thumb-pressure button.

The track gage is also insulated and is fitted with end castings of approved AREA design with a guard-rail-spacer lug. According to the manufacturer, the gage is always accurate and is not affected by climatic conditions. *Aldon Company, Chicago* •



Air Conditioners

Twenty-four models in a line of room air conditioners, including an extra capacity 1½-hp unit, can be used in factories, offices and other large rooms. The largest unit features thermostat control, comfort director grills and easy filter removal.

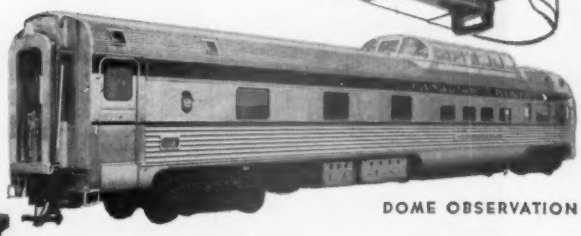
The 1½-hp unit is suited for installing the transoms, through the wall, or in conventional window installations. It is hermetically sealed and carries a 5-year guarantee, which covers the cooling circuit and compressor. The ½-hp model is available in two styles, standard and de luxe. The ¾-hp conditioners are available in 12 styles, two consoles and 10 window units. Eight models in the 1-hp line, six window units and two consoles, have been produced. Most of the units feature modulation control and reverse heating cycle. *York Corporation, York, Pa.* •

newest Budd streamliners ride safely on . . .

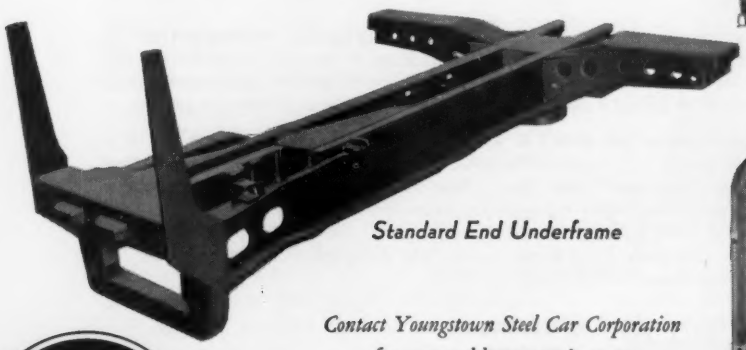
YOUNGSTOWN STEEL CAR WELDMENTS (YOCAR)

SLEEPER

Youngstown Steel Car Corporation has been forming, welding and working with all types of steel since 1914. As BUDD has developed the art of designing and building modern streamlined trains, Yocar has developed the technique of fabricating and welding modern high strength steels. Underframe weldments by *Yocar*, assure a safe end connection for these luxurious trains by Budd.



DOME OBSERVATION



Standard End Underframe

DOME-COACH-LOUNGE

Contact Youngstown Steel Car Corporation for your weldment requirements

YOCAR

YOUNGSTOWN STEEL CAR CORPORATION

NILES 6, OHIO

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Glacial acetic acid stays put when it's shipped in GATX aluminum tank cars. These cars can't corrode—the product stays free of contamination. There's no leakage or damage—no special linings are needed.

There's a General American tank car that's built or can be built to meet *your* bulk shipping needs. You can choose from over 200 different types in the fleet of 48,000 cars designed, built and operated by General American. When you depend on General American you get the *right* cars for your product, at the *right* time, at the *right* place—*without capital investment.* For details, call your nearby General American district office.

typical products successfully shipped in GATX aluminum tank cars • *Glacial Acetic Acid* • *Hydrogen Peroxide* • *Fatty Acids* • *Ethylene Glycol* • *Acetates* • *Nitric Acid (Over 85%)* • *Refined Tall Oil* • *Ammonium Nitrate*

features of GATX aluminum tank cars* *Flued Dome Construction*** • *All-Welded Tank, Jacket and Underframe Corner Posts and Girth Bands Riveted to Underframe* • *Safety Dome Platform (Available)* • *Insulation (Available)* • *One-Piece Longitudinal Bottom Plate* • **All features standard unless otherwise indicated.*

**The one-piece flued dome saddle was designed and pioneered by General American as early as 1938.

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135 South La Salle Street • Chicago 90, Illinois

Is There a Future for Mechanical Refrigeration?

Four facts stand out clearly in the special report on mechanical refrigeration for refrigerator cars which appeared on pages 49 to 60 in our April 18 issue. (1) Mechanical refrigeration is essential to the transportation of frozen goods. (2) Temperature control within plus or minus 2 deg, which is possible with mechanical refrigeration, is desirable for the transportation of many fresh fruits and vegetables. (3) Shippers of frozen products want 50-ft cars; shippers of fresh products want 40-ft cars. (4) It will be several years before there will be enough mechanical refrigerator cars to explore thoroughly their possibilities in handling fresh fruits and vegetables and in other above-freezing service.

While the pressure for refrigerator-car temperatures at or below 0 deg F arose from the citrus juice concentrate branch of the frozen-food industry, it is now evident that at temperatures above zero changes take place, even in solidly frozen products, at accelerated rates which too rapidly impair flavor and materially reduce storage life. Since water ice and salt cannot be counted on to maintain such low temperatures, there is no alternative but mechanical refrigeration for all frozen foods.

The range of temperatures which can be tolerated in the transportation of fresh products without bringing them to market much below their best is surprisingly narrow. Consumers, knowing no alternative, accept fresh products, particularly vegetables, at considerably less than top quality.

Because fresh vegetables and many fruits need to be consumed as fast as delivered, the shippers of these products are better satisfied with 40-ft cars than with 50-ft cars—the so-called "giants." The latter meet the requirements of frozen-food shippers because their products, once frozen and kept frozen, are not perishable in the same sense as fresh products. They are frequently loaded to the full axle-load capacity of the car and are delivered to storage rather than to the dispenser.

So far the mechanical refrigerator cars have been available for almost no loadings except citrus fruit concentrates, of which the railroads now move about 60 per cent. It would seem to be within the realm of possibility that a sufficient supply of these cars could increase the proportion of other frozen-product traffic handled by the railroads from the present 28 per cent of frozen products as a whole to the same 60 per cent which they now have of the citrus concentrates. Certainly the probability of building up this traffic without employing mechanical refrigeration service is very remote.

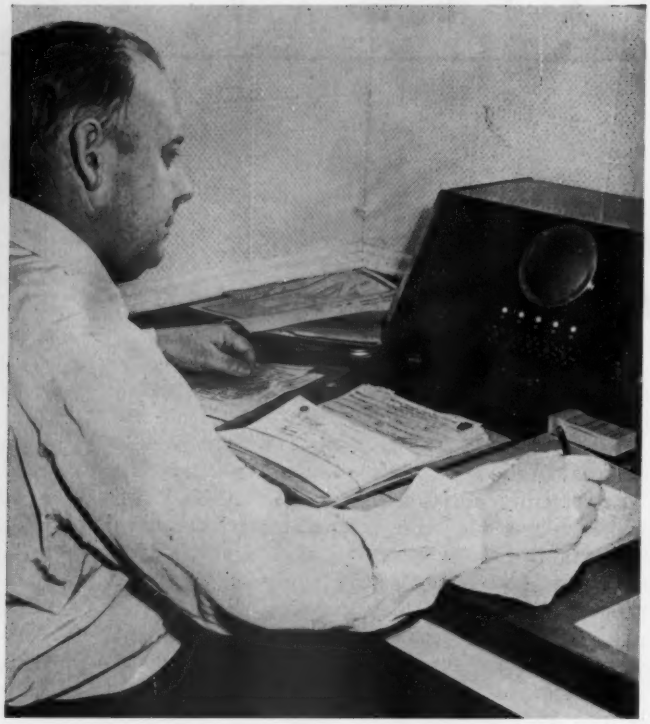
In considering the possibility of applying mechanical refrigeration to the transportation of fresh perishable products the immediate stumbling block is the added first cost of a mechanically equipped refrigerator car. Certainly it is a legitimate hope that this situation may be alleviated as experience is accumulated. However, the advantages of mechanical refrigeration as compared with salt and ice are substantial, as the discussion in the report indicates. In the long run they may very well add up to a tangible economic justification for some increase in the first cost of the car.

One factor not stressed in the report is something of a handicap in the immediate outlook but a long-range advantage. That is the facilities required to provide ice and salt service to refrigerator cars en route. These involve major investments which will be useless if and when mechanical refrigeration replaces ice in all bunker cars. Once these facilities have been retired, however, their absence will present no disadvantage to the service.

In any discussion of a new kind of service, such as mechanical refrigeration represents, it usually becomes evident before the development has progressed very far that its future cannot be settled on the basis of a comparison in the terms used in connection with the method or equipment superseded. The new values which the new means creates change the economic aspects of the situation.

But there is another factor not economic at all in its direct relation to the expense factors. This is the service to the shipper. It is illustrated by the relation of mechanical refrigeration to the transportation of frozen foods. Furthermore, in the limited experience which has been accumulated in the movement of fresh meat under mechanical refrigeration it is said to have effected enough improvement in the condition of the product on delivery to be considered of competitive advantage. If a similar result is experienced with fresh fruits and vegetables, when cars are available for a thorough trial of mechanical refrigeration in these services, first-cost economics are certain to decline in importance.

PICKER CALLS in names and addresses of consignees to . . .



CHECKER, who works with from three to five pickers working in freight cars.

IN KANSAS CITY FREIGHTHOUSE . . .

LCL Checking Is Faster

Missouri Pacific puts foreman and 12 check clerks in office with loudspeaker consoles connected to 160 outlets on platforms—Pickers in freight cars use talk-back loudspeakers for calling to checkers

To improve operations at its Kansas City freighthouse, the Missouri Pacific installed a loudspeaker communications system. It is used with a new centralized checking method of handling paperwork involved in LCL freight handling.

In the new system, the clerk is in an office fitted with a loudspeaker console with five lines that can be connected to outlets on the platform columns near the freight cars. The picker who unloads the cars plugs the cord of his portable talk-back speaker into one of these outlets, and takes the speaker with him into the freight car.

When he has turned several packages face up, he presses a button on the speaker "signaling" the clerk. Because the speaker will pick up sound from any part of the car, the picker can go back to the packages and reads off the names and addresses of consignees. After receiving spot numbers from the clerk and so marking the freight, the picker loads the packages on a trailer truck.

Meanwhile the clerk flips a key on his console and works with a picker in another freight car. He is able to "work" three to five cars, because as he works with one picker others are lining up freight for checking, or are loading it on trailers. Each check clerk works in a soundproof booth using a desk-high shelf providing space to spread his waybills. He has a loudspeaker console with a talk-back speaker in its face, and a foot-switch. His console has five lines running to the switchboard in the foreman's office. Automatic volume control at the clerk's console adjusts the sound so that the volume at both ends of the line remains the same (no blasting or fading).

Under the old system of operations, one check clerk was required for each freight car being unloaded. He took the waybills for that car with him on a clipboard and went to the car with a picker. He waited while the picker turned several packages face up and read the names and addresses of consignees to him, then told the picker the spot numbers to mark on the packages. The packages were then put on a trailer truck and

hauled by tractor to the proper spot. In this rather long process, the picker spent most of the time handling freight, while the clerk was idle except for the relatively short time needed to read off spot numbers.

The foreman has a loudspeaker console with selector keys and loudspeaker as well as a microphone and footswitch. Lines from his console and those of the 12 check clerks' consoles terminate in a switchboard near his desk. The foreman connects a check clerk's console through to the particular line going to the picker in a freight car working with the clerk. Switchboard connections allow the foreman to connect his console to any of the lines going to outlets on the platform, enabling him to monitor LCL checking operations. The freight agent has a loudspeaker console in his office enabling him to monitor freighthouse operations, as well as to keep in constant communication with the foreman.

Why at Kansas City?

The Missouri Pacific selected this freighthouse for a centralized checking system because: (1) it handles a large volume of interline LCL, moving out in trucks for city delivery or over-the-road delivery by Missouri Pacific's coordinated rail-truck operation; (2) a large number of cars are loaded at Kansas City each day for diverging lines, and these must be moved promptly; and (3) this freighthouse is the break-bulk point for many overhead cars which arrive daily from stations on connecting lines, and this freight must be sorted and started on the next leg of its journey with minimum delay.

Design and installation work was done by communications department men under the jurisdiction of R. A. Hendrie, general superintendent of communications. The loudspeaker communications equipment was furnished by the Electronic Communication Equipment Company, Chicago.

FOREMAN MONITORS checking operations over loudspeaker console. Switchboard at right is used to make connections between checkers' consoles and lines to pickers.

Benchmarks and Yardsticks

FREEDOM IS LOSING GROUND all the time because so many of its supporters are lukewarm. They lack the crusading zeal to propagate freedom that doctrinaire socialists and communists have for their program of enslaving people to the state.

This is not merely a theoretical situation, but an intensely practical one—especially in the domain of transportation. For example, it is only people without understanding or respect for freedom who can favor, or be complacent about, governmental invasion of such businesses as transportation and electric power. Wherever there is government there is coercion—and the only use of coercion that a true friend of freedom can be comfortable about is its application in such areas as military defense and repressing crime.

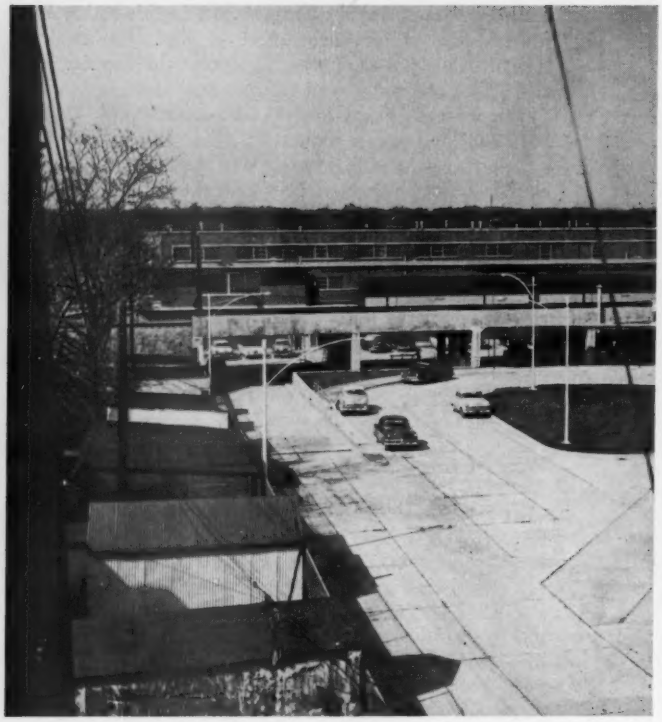
In the April issue of Fortune magazine there is an article entitled "The Real Power Behind Communism," by the late Russell Davenport. The author points out that, if the way of looking at life that is called "materialism" is true, then communism makes more sense than the "free way of life."

If man and the world around him are nothing but matter, as materialists insist, then man is the puppet of the laws of chemistry and physics. He has no real freedom, and the belief that he does or should have is a delusion. This is what the communists believe, and they believe it with all the fervor of a religion. The trouble is that many if not most opponents of communism have the same belief that the communists do in the strictly materialist nature of man. The main difference between these people and communists is that they haven't thought their materialist beliefs through to a logical conclusion, as the communists have.

To have real respect for human freedom, it is necessary to believe that men are more than matter, wholly controlled by physics and chemistry. Those who hold this belief, and think about it, must ultimately conclude that coercion (e.g., government) is inherently evil whenever it operates outside of the narrow sphere where coercion is justifiable—namely the relatively restricted area of dispensing justice, discouraging violence, and providing military defense.

Not many Americans believe in freedom to this degree. They are quite content to see government providing economic services that could be provided by the free market. They see no wrong in financing long-haul highways or waterways or electric power by coercion (i.e., by taxation, instead of free-market payments by the people who want the service).

It is no wonder that freedom is receding when so many of its alleged defenders have so little real respect for it. J.G.L.



JUST MINUTES FROM HOME NOW, for many thousands of Clevelanders, the elaborate Union Terminal is assuming new civic stature through fulfillment of a 40-year dream . . .

Rapid Transit for Cleveland

$30 million rail line utilizes railroad rights of way and facilities provided when the Union Terminal was built in 1930—Speed is keynote of 13-mile system—Extensions are already in the offing

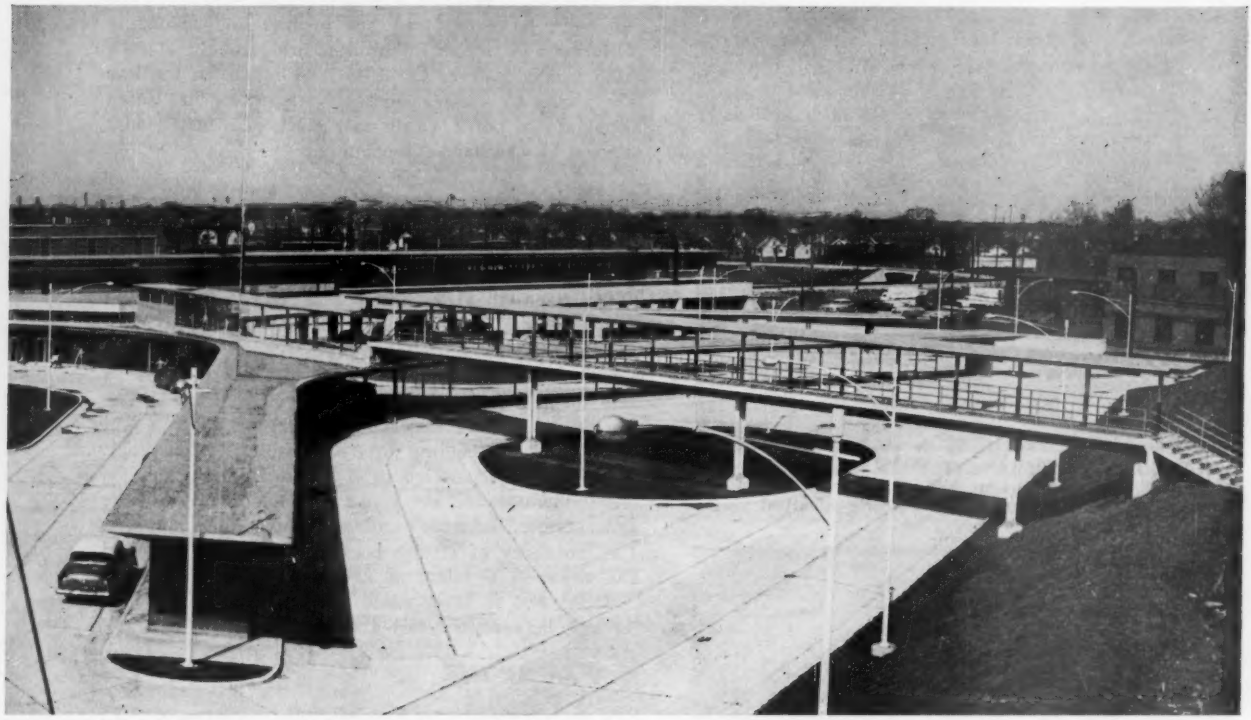
A section of the Cleveland Union Terminal boarded up and undeveloped since it was completed back in 1930, was thrown open to the public on March 15 with considerable fanfare.

The event was part of week-long public celebration marking inauguration of service on the new $30 million rapid transit line of the Cleveland Transit System. The hitherto unused portion of the terminal has been completed as an entrance and rampway to a new three-track rapid transit station within the terminal. The marble walls and fittings of the new transit station area match those of the terminal proper. In a sense, they symbolize the unusually close coordination between Cleveland Class I railroads and the Cleveland Transit System which made the establishment of this rapid transit line possible.

Unlike rapid transit lines elsewhere in the U.S., the new Cleveland line is neither elevated nor subway. It is unusual, too, for being located entirely along the rights of way of trunk-line railroads. The bulk of Cleveland Rapid's mileage is along the edge of Nickel Plate property. The line occupies Cleveland Union Terminal land both to the east and the west of the terminal. Another segment of the line was placed directly on the roadbed of the Shaker Heights Rapid Transit (which now shares the Rapid's trackage west from the junction near East 55th st.). The western end of the line runs parallel to the New York Central to West 117th st., and extension of this route to West 143rd st. and Lorain ave., has already been approved by the city's transit board.

Uncompleted Venture

The origin of this unusual line location traces back to the Van Sweringen brothers, who formed the Cleveland Union Terminal Company. A 1919 city council ordinance provided for the construction of a new



EVERYTHING'S CLOSE AT HAND at the $1.8-million Windermere terminal in East Cleveland. The car shop (left background) and car storage yard lie within the terminal loop track. Bus transfer platform shelters (right, center and left foreground) lead directly to the station entrance as does the overhead walkway connecting with the 480-car parking lot. *(Credit—Cleveland Press)*

railroad station on the Public Square and the inclusion of "facilities for rapid transit, suburban or interurban lines within the city of Cleveland . . . to be operated when the city constructs subways, elevated or other rapid transit lines within its city limits or elsewhere as a part of such a system of transportation."

The Van Sweringens, interested in developing outlying real estate, acquired the Nickel Plate primarily to gain a location for a transit line to tap their then-undeveloped land. Part of this plan was realized with completion of the Shaker Heights line, but the depression of the thirties nipped their venture pretty much in the bud and many of the transit line structures, completed at a total cost of over $18 million, lay idle.

In 1948 the Reconstruction Finance Corporation agreed to purchase City of Cleveland revenue bonds to finance completion of the old rapid transit project. Cleveland voters gave an expanded transit board authority to build the proposed line. Shortly thereafter the RFC made a loan of $29.5 million. Ground was broken on the revived project in February 1952 and the first train, carrying civic and transit dignitaries, departed from the Windermere station for the Union Terminal at 11:10 a.m. last March 15. The service was opened to the public at noon that same day.

More Routes Are Needed

Because the line does not reach the heart of Cleveland's shopping district, it is not expected to be an immediate rousing success. High on the priority list is construction of a downtown subway distribution loop—an undertaking voters have already approved as a $35 million county bond project. In addition to this and the west-end extension, a third is contemplated to tap the highly developed Cleveland Heights area to the east. Another possible development is a merging of the Cleveland Rapid with the Shaker Heights system presently owned by the city of Shaker Heights. Although the equipment of the two lines is not compatible (except as to gage and traction voltage) the economies possible in standardized operation, centralized maintenance and administration have attracted attention.

It is the speed of the service, not the fare charged, that determines public acceptance of a transit service, according to General Manager Donald C. Hyde of Cleveland Transit. Following this concept, the new line has been built to avoid contact with any city streets, bridges or roadways occupied by other vehicular traffic. Its signal system was designed for safe rapid flow of closely spaced trains. And its all-new rolling stock is designed with a free running speed of 47 mph—somewhat faster than equipment on most rapid transit lines today.

For its entire 13.3-mile length, the new double-tracked rapid transit line is built for fast operation. It is expected to handle 20,000,000 passengers annually through some of the most congested areas of the city. Passengers will come from two main sources: (1) motorists attracted because of the time they can save over driving to and parking in the downtown area; and (2) existing surface transit system passengers who will be brought to the rapid transit line through coordinated feeder bus schedules. To accommodate the surface transit

COUPLED SEMIPERMANENTLY IN PAIRS, the new Cleveland Rapid equipment has all axles driven with a total of 220 hp per car. Twelve nearly identical single cars handle off-peak service.

HIGH RATIO OF SEATING to standee capacity is an unusual feature of the new cars. Auxiliary battery-powered lighting turns on automatically should there be an interruption in the main power source.

passenger, large canopied bus loading and unloading platforms and convenient transfer are provided at each rapid transit station. For Cleveland railroads, the line is expected to add considerable stature to the Union Terminal and put it within easy reach of a far broader segment of Cleveland's population.

Fast and Frequent Service

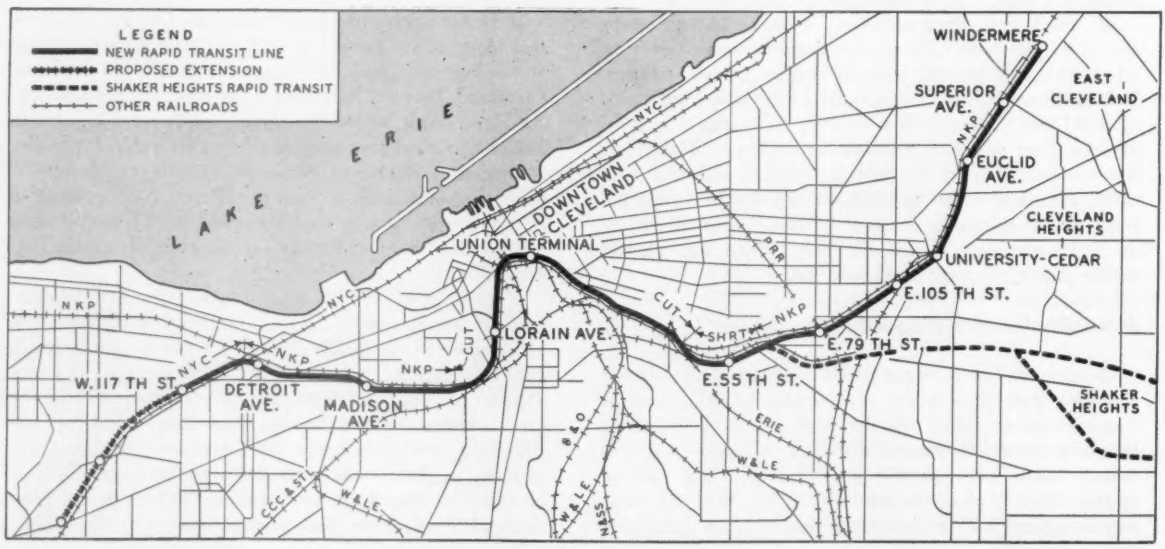
Running time between the Union Terminal and Windermere station, the terminus in East Cleveland, is 18 minutes—about half the time required by street transit. This is a run of 8 miles and the trains make six station stops en route. Operation west of the Union Terminal to 117th st. will not begin until August as that segment of the line is not yet completed. The scheduled time for this 5.3-mile part of the run will be 12 minutes, including three intermediate station stops.

Trains now depart from the Union Terminal and the Windermere station every five minutes during the day and every ten minutes evenings, Sundays and holidays. The frequency of service between the Union Terminal and the west terminal at 117th st. has not been announced but it is expected that many runs will be through between the east and west terminals.

Cars Are All New

A total of 68 rapid transit cars were built for the line by the St. Louis Car Company. They have bodies of aluminum alloy reinforced with Cor-Ten steel and mounted on Cor-Ten steel underframes. Fifty six of the cars are semipermanently coupled as two-car units with a motorman's cab at the outer ends only. The other 12 are designed to operate singly in off-peak hours but they can be used in multiple or with one or more of the two-car units as conditions demand. All of the cars have an identical exterior color scheme of silver and blue.

Station platforms are all at car floor level and will accommodate trains up to six cars. Passengers enter and leave the cars through doorways about one-quarter car length from the car ends. End doors permit passage



from car to car. The sliding-type side doors are actuated by compressed air motors remotely controlled from any cab or from an additional control point between the two-car units. When open, the doorways are wide enough for simultaneous boarding or alighting of two persons. The door controls are interlocked with the traction motor circuits so that the train cannot be moved until all doors are closed.

The single-unit cars, which cost about $71,000 each, are 48 ft 6 in. long, weigh 55,000 lb and have a seating capacity of 54. The double-unit cars are essentially similar but have a slightly higher seating capacity because they have only one motorman's cab per unit instead of two. All cars are 11 ft 9 in. from rail to roof and 10 ft 4 in. wide. They are mounted on specially designed 4-wheel inboard bearing trucks developed by the St. Louis Car Company and General Steel Castings Corporation. Two 55-hp Westinghouse 600-volt d-c traction motors are mounted on each truck. Each motor drives an axle through silent automotive-type hypoid gears running in an oil bath. The trucks are equipped with four shock absorbers—two for control of lateral movement and two for vertical movement. Roller bearings on all axles and in the gear drives were furnished by the Timken Roller Bearing Company.

Traction motors are controlled by a Westinghouse Air Brake Company "Cineston" which combines acceleration and deceleration control in a single handle. The Cineston handle, designed with a dead man control feature, is moved in one direction for automatically controlled acceleration, the other for dynamic braking through the traction motors. An air brake system automatically supplements the dynamic braking in the lower speed ranges.

For emergency applications, both systems are applied simultaneously.

Ventilation is provided by a forced-air system built into the car roof. Motor-driven fans draw outside air through grilled openings in the roof, passing it over filters and into the car through ceiling outlets. Electrical heating is automatically controlled by thermostats which shut off heating elements when the inside temperature exceeds 65 degrees. They are turned on when the outside temperature drops below 55 degrees.

The interior of the cars is finished in bright tones complementary to the seating upholstery which is a pastel flame-resistant plastic fabric. The seats, which have stainless steel backs and grab handles, are non-reversible and are so placed that passengers always fact the nearest exit. Windows are stationary without sash and are glazed with Solex heat-resisting safety glass. The floor covering is marbleized black and blue rubber.

In general, the design of the new cars is based upon experience in the operation and maintenance of recently built transit equipment in Chicago, Boston and Toronto.

An Entirely New Line

Although the new line utilizes many of the overpasses and other structure dating from the Van Sweringens' efforts, the stations, shop facilities, track and signals are entirely new. The double-track main line has been laid throughout with 100-lb ARA Type A rail, Thermit welded except at insulated signal joints and special trackwork. The rail is laid on mixed hardwood 6-in. by 8-in. by 8-ft ties spaced on 2-ft centers. Slag ballast is used with a minimum depth of 12 inches. The rail was welded in place. It was ordered undrilled and in 39-ft lengths from the United States Steel Company. Tie plates are used throughout in main track and the rail is secured by cut spikes and rail anchors. There are inside guard rails on all bridges and restraining guard rails are installed on short radius curves in the terminal areas.

That portion of the line on the roadbed of the Shaker Heights line was rebuilt to Cleveland Rapid standards. The older 80-lb rail was then used for storage yard trackage at the Windermere terminal which, in addition to being the largest bus-to-rail transfer station, is also the location of the car maintenance shops.

Station Designs Differ

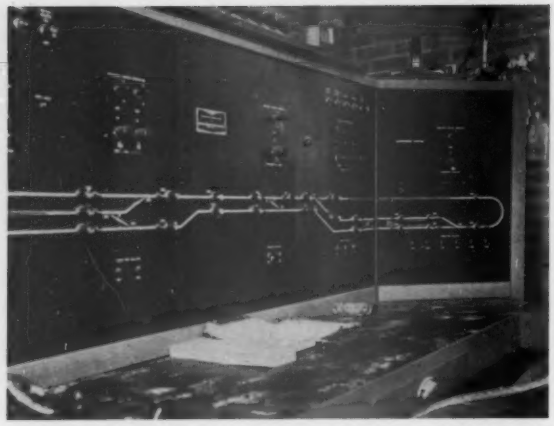
The design of the stations varies with each individual location and with requirements for bus loading and unloading, the pattern of adjacent streets, and volume of auto parking anticipated. All bus transfer and rail platforms are canopied. The larger stations, such as Superior ave., University-Cedar, and Windermere, have brick buildings finished with glazed tile walls, terrazzo floors, acoustical tile ceilings and fluorescent lighting. Stations where less traffic is anticipated have ticket booths on the platform. Each station has its own individual color scheme both on the platforms and in the buildings so passengers may identify the station quickly from a moving train.

The Windermere shops and storage tracks are located within a loop track on which trains are turned when necessary. Three distinct canopied bus loading loops are provided and an additional canopied walkway connects the station with a 480-car parking lot. The station building, in addition to ticket offices and rest rooms, houses a bakery and snack restaurant. This terminal is the largest on the system and cost approximately $1.8 million.

The one station shared with the Shaker Heights line—East 55th st.—presented an unusual problem because the Shaker Heights equipment has a much lower floor than the Cleveland Rapid equipment. This was solved by placing a ground-level platform between the two tracks for Shaker Heights passengers and high-level platforms at the outside of each track for the Cleveland Rapid passengers. Entirely separate platform and station facilities are maintained for the two lines in the Union Terminal.

In the Union Terminal the Cleveland Rapid has two fare collection areas with ticket booths and turnstiles for entrance and exit. Each has two reversible escalators and two wide stairways leading to the train platforms. Fluorescent lighting is used in the stairwells which are enclosed by plate glass windows at the platform level. Stainless steel and glass doors open automatically when passengers step on a treadle carpet to enter or leave the platform.

Two platforms serve three tracks. The center track is used for trains in either direction depending on traffic conditions. The platforms are surfaced with a non-reflective blue-gray concrete and edged with a wide, white non-



WINDERMERE NX INTERLOCKING PANEL controls movements to a point just east of the University-Cedar station. Two buttons on the track diagram, one at the point of entrance and one at the point of exit, are pushed by towerman to control switches and signals for a route.

slip safety strip. Continuous strips of suspended fluorescent light fixtures illuminate the platform area. To facilitate removal of rubbish thrown onto tracks by passengers, the tracks are paved over with blacktop. The motion of the trains thus sweeps trash into catch baskets located at intervals over the length of the platforms. There is a similar arrangement at the Windermere terminal.

Push-Button Interlockings

Interlockings on the new Cleveland Rapid are the NX entrance-exit push-button type. The towerman has a panel with a diagram of the tracks on which each home signal is represented by a button. To line up switches and clear a signal for a route, the towerman pushes the button representing the signal where the train is to enter, and then pushes a record button corresponding with the exit from the interlocking.

If several following trains are to use the same route, the towerman not only pushes the signal button but also turns it 90 deg to set up a "fleeting" control under which, after one train passes through the interlocking, the home signal will clear automatically for the following train.

An NX interlocking control panel, in a "tower" at the east end of the station platform at Windermere, controls 3 single switches, 3 crossovers and 14 home signals at Windermere, as well as 6 switches and 10 home signals at a center siding just east of the University-Cedar station.

The NX interlocking panel in the tower at the Union Terminal controls power switches and signals not only in the terminal but also as far east as East 59th st. and as far west as West 30th st. yard.

Eastbound trains of the Cleveland Rapid and Shaker Heights lines use the same track from the Union Terminal to the junction switch near East 55th st. As each eastbound train leaves the terminal, a corresponding "identification" is automatically placed in a sequence identification system, which for sake of brevity can be termed "W" for Windermere and "S" for Shaker Heights. These identifications are transmitted automatically to the junction at East 55th st.

If a train approaching the junction is to be routed on the Cleveland Rapid to Windermere the junction switch is controlled automatically to the normal position and the home signal is controlled to display a Clear aspect for that route.

If the next train approaching the junction is to be routed to Shaker Heights, the junction switch is controlled to the reverse position and the signal is controlled to display the apect for that route. The system has capacity to "hold" identifications for as many as 15 trains while they are en route between the Union Terminal and the junction at East 55th st.

When the section between the Union Terminal and West 117th st. is placed in service in August, a crossover at the West 117th st. station will be controlled automatically. After a westbound train arrives at the platform, and makes its station stop, the crossover will be reversed, and a signal will be cleared to direct the train to start its return trip on the eastward track.

Automatic Block and Train-Stop

Each main rack is signaled for train movements in one direction only. The ordinary automatic blocks are about 700 ft long, with a one-block overlap. This signaling allows following train movements to be made on a three-minute headway.

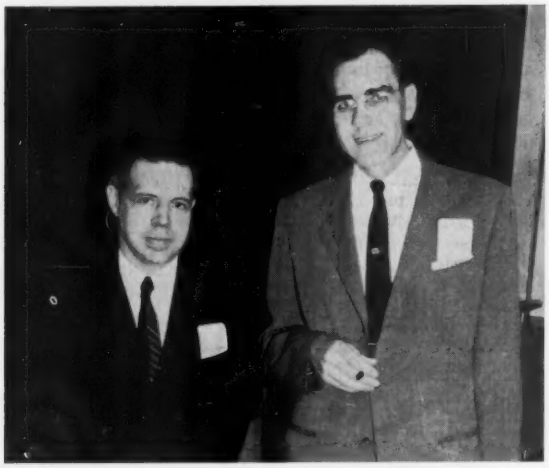
An automatic trip-type train-stop device is placed at the right of the track opposite each automatic block signal and each interlocking home signal. When a signal is displaying a green or a yellow aspect, the corresponding trip is held in the lowered position below the level of the top of the rail. When a red aspect is displayed the trip is raised above the top of rail. If a train passes a red signal, the trip strikes a lever on the leading car which causes the brakes to be applied in emergency.

At each automatic signal the insulated rail joint is 10 ft in approach to the trip which is opposite the signal. In normal operation when a train approaches an automatic signal displaying the red aspect, the motorman stops the train with the leading wheels on the 10-ft section between the insulated joint and the signal. After three seconds, the trip arm will clear to permit the train to enter the block and proceed at slow speed.

When a red aspect is being displayed on an interlocking home signal, an approaching train is stopped short of the signal to wait. If the towerman wants to move the train into interlocking limits already occupied, he sends out a control to display the Call-On aspect. This directs the motorman to reach out of his window and operate a release device, mounted at the side of the track. This causes the trip to be lowered to the clear position so the train can pass the signal without the brakes being applied.

In approach to stations the automatic signals are spaced for shorter blocks, and automatic timing controls are used, so that when one train is making a station stop and is departing, a following train by reducing to slow speed, can receive approach aspects, rather than red aspects, and thus move on into the station as the other train departs, without having been stopped at red signals. The signal, interlocking and train-stop equipment on this project were made by the General Railway Signal Company.

C. D. Howe, president-elect of the association, and W. W. Barger, new second vice-president. Mr. Howe is chief lumber inspector of the L&N, and Mr. Barger is chief inspector manager treating plants department, Santa Fe.



PRR representatives—John P. Sherron, assistant purchasing agent, and Paul D. Brentlinger, forester.

W. R. Fritze, Koppers Company; C. Miles Burpee, secretary-manager, AWPA Service Bureau; and R. H. Mann, engineer, Service Bureau.

AWPA HEARS ABOUT IT

There's Economy in Treated Wood

Experiences of Illinois Central are subject of address before annual convention—Committee recommendations reflect new developments in timber preservation

Surely, there will be no early return to the requirement of 50 million ties annually—and I dare say not more than 30 million will be required again until the life cycle of ties treated just prior to 1930 has been completed."

This comment on the railroads' future requirements for crossties was made by Clarence S. Burt, assistant to vice-president—purchases and stores, Illinois Central, in speaking April 14 at the annual convention of the American Wood Preservers' Association at the Jefferson Hotel, St. Louis. With respect to other uses of treated wood in the railroad field, Mr. Burt declared that the Illinois Central "will continue to roll over timber trestles constructed largely of high-quality Southern yellow pine timber treated with Grade 1 creosote," and that buildings and similar uses comprise "a field in which treated wood has not yet exerted its greatest possible influence." Car construction is an example of a field "in which the use of treated material has not yet progressed too rapidly or too extensively."

Mr. Burt's address was the one element in the program that served to bring railroad requirements for treated wood sharply into focus. However, railroad representatives present found much of direct and indirect interest in other addresses dealing with more technical aspects of wood preservation, and with studies involving treated commodities of primary interest to other fields. Poles, for example, came in for unusual attention. As usual, the presentation of committee reports comprised a considerable portion of the program. Many of these contained recommendations involving treatment specifications covering preservatives and commodities used by the railroads.

How to Save $17.7 Million

Mr. Burt reviewed the development of wood preservation on the Illinois Central. To illustrate "the important savings secured through the preservative treatment of crossties," he gave the results of a case study involving ties used by the IC during 1944. This year was selected because the requirements were large and available price information "more accurate." During that year the road installed 2,365,739 treated wood ties with a 30-year average life expectancy. They were installed at a cost of

J. E. Brown, R. H. Mansfield, W. E. Gadd, J. C. Mitman, H. C. Lucas, S. J. Ridd—all American Creosoting Company. In the picture at the right—Clarence S. Burt, assistant to vice-president, purchases and stores, IC; Roy Lumpkin, manager tie and timber department, Rock Island; R. S. Belcher, retired manager treating plants, Santa Fe; W. J. Burton, retired assistant to chief engineer, MP.

$2.42 each, including material and labor, so that the total cost was $5,725,988.

If the same number of untreated ties had been purchased at that time, the cost installed would have amounted to $5,204,625. At a 10-year average life, said Mr. Burt, they would need replacement in 1954, and again in 1964. "Thus the total cost if untreated ties had been used during this 30-year period would have been $23,420,816.10. The savings as a result of the use of treated ties during that year amounted to a total of $17,695,727.72.

Accordingly, the expenditure of 10 per cent more in capital resulted in the saving for the railroad of a little over 300 per cent on the investment."

Mr. Burt also told how the IC is using tie test sections to obtain accurate information on the causes of tie failure. As the ties in these sections are renewed or replaced, each one is inspected by the manager of the road's forest products bureau and the engineer of ties and treatment, together with the local division engineer and supervisor of track, the purpose being to determine the cause of failure and other information pertinent to the tie service life.

Through 1954, he said, a total of almost 190,000 such ties had been inspected and reported. About 26.6 per cent of these were removed because of decay, 48.5 per cent failed because of mechanical wear and 24.9 per cent more were renewed because of other defects.

Experience with the test sections has been used as the basis for formulating standard practices in connection with the use and treatment of various species of wood for crossties. For best crosstie service performance the road has now standardized on only three species—Southern yellow pine, gum and oak. Furthermore, these are distributed for use on the basis of findings which "clearly indicate that oak shows less checking and splitting when used in the more northern areas of our railroad, with its somewhat less rainfall, whereas gum and pine can better cope with the severe climatic conditions to which ties in the southern portion of the railroad are exposed."

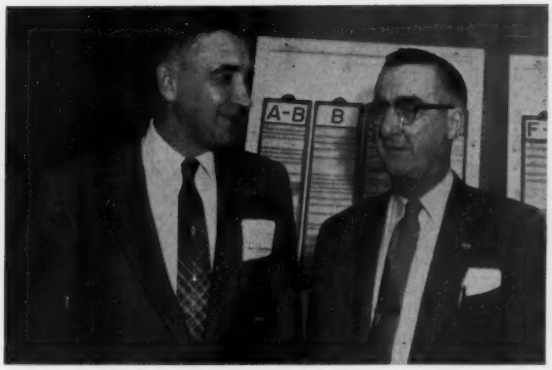
Mr. Burt declared that "on the basis of service life and capitalized cost, our people have long since determined in favor of the treated timber bridge over the permanent type bridge." He said that "the findings of our engineering department in this regard are quite convincing." These findings are based on comparative cost studies involving a structure 14 panels in length (182 lin ft) and 15 ft high. A ballast-deck structure of this type, constructed of untreated material, has an average cost per lineal foot of $79.74. For a ballast-deck structure of treated material, the average cost is $107.96 per lin ft. A concrete pile trestle of the same length and height has an average cost per lineal foot of $226.16. Using these figures of initial cost, and data based on the expected service life from each type of structure, the cost of perpetuating each type was figured as follows:

Untreated ballast deck—10 year life		
Initial cost	$ 79.74	per lin ft
Sum of money to be set aside at 5 per cent interest to perpetuate structure in 10 years	126.79	" " "
Total capitalized cost to perpetuate	$206.53	" " "
Treated ballast deck—42 year life		
Initial cost	$107.96	" " "
Sum of money to be set aside at 5 per cent interest to perpetuate structure in 42 years	15.97	" " "
Total capitalized cost to perpetuate	$123.93	" " "
Concrete pile trestle—75 year life		
Initial cost	$226.16	" " "
Sum of money to be set aside at 5 per cent interest to perpetuate structure in 75 years	5.98	" " "
Total capitalized cost to perpetuate	$232.14	" " "

Mr. Burt pointed out that "by far the greatest volume of wood used today in freight car building has to do with decking and lining for box cars." In this connection he cited some costs which he believes "should be of considerable interest." The cost of an untreated wood floor, including material and labor, for a standard 50-ton box car is approximately $256 per car. The cost of a treated wood floor for the same car is approximately $295.75, while "a nailable steel floor, again including material and labor, costs approximately $740 per car." Notwithstanding these cost comparisons, the feasibility and economical merits of a treated wood floor are yet to be determined . . ." said Mr. Burt.

Treating Railroad Car Lumber

Among the committee reports several recommendations of interest to railroad users of treated wood were made by the Commodities committees. For instance, Committee C-15 (Railroad Car Lumber) offered a proposed standard



R. B. Radkey, engineer ties and treatment, of the Illinois Central at Chicago; O. L. Shaw, treatment supervisor, also from the Illinois Central.

C & O representatives—M. J. Hubbard, general supervisor bridges & buildings, and H M. Harlow, assistant general supervisor B&B.

for preservative treatment for railroad car lumber by pressure processes and recommended that it be adopted as a tentative standard. Preservatives referred to in the specification include chromated zinc chloride, tanalith (Wolman salts), creosote, and pentachlorophenol.

Committee C-20 (Fire-Retardant Lumber) brought to a conclusion its assignment to prepare a standard for pressure treatment of fire-retardant lumber. This committee submitted a tentative standard for adoption in 1953, which was approved. Several revisions of this tentative standard were recommended and adopted in 1954. This year the committee recommended that the tentative standard be confirmed as an adopted standard. The fire-retardant chemicals mentioned in this standard consist of chromated zinc chloride, chromated zinc chloride (FR), Minalith, and Pyresote.

The Treatment Methods committees also came up with a number of recommendations. Committee T-2 (Pines, Southern, Jack, Ponderosa, Lodgepole and Norway) recommended that the use of pentachlorophenol for the preservative treatment of lodgepole pine poles be confirmed as standard. This recommendation was made on the basis that actual production of lodgepole pine poles treated with pentachlorophenol has now reached an appreciable amount, having increased from 49,581 poles in 1952 to 102,949 in 1953.

How Much Incising?

Committee T-3 (Douglas Fir, Larch, Western Red Cedar, and Western Hemlock) stated that it had collected considerable data on the penetrations obtained in unincised lumber and timbers of western species by commercial treatment. Preliminary examination of the data indicates the possibility that a recommendation should be made to the effect that all resistant hardwood species under the jurisdiction of the committee should be incised. However, the committee was not ready to make a definite recommendation at this time.

Committee T-8 (Poles, Non-Pressure Treatment) offered for adoption a tentative standard for the full-length non-pressure treatment of western red cedar poles. The preservatives specified are creosote and pentachlorophenol-petroleum solution, and it is stipulated that the treatment "shall consist of at least two operations, namely, the hot bath, and the cold or cooling bath."

REGISTRATION board was favorite gathering place for members searching for friends and acquaintances.

All these committee recommendations were approved.

A comprehensive compilation of pile-service records was included in the report of Committee U-6 (Pile Service Records). This tabulation was compiled in accordance with the committee's assignment to collect and publish service records on older installations of treated piles, with particular reference to piles being used for groins and for foundations.

All sessions of the convention were under the general supervision of President I. C. Miller, vice-president, T. J. Moss Tie Company, St. Louis.

Election of Officers

In the election of officers, B. D. Howe, chief lumber inspector, Louisville & Nashville, Louisville, Ky., was advanced from first vice-president to president; N. E. Kittell, Joslyn Manufacturing & Supply Co., Franklin Park, Ill., was advanced from second vice-president to first vice-president; and W. W. Barger, chief inspector, manager treating plants department, Santa Fe, Topeka, Kans., was advanced from director to second vice-president. Newly elected members of the Executive committee are J. M. Gurd, vice-president, Timber Preservers, Ltd., New Westminster, B. C.; L. W. Kistler, tie and timber agent, Frisco, St. Louis; and Roy Lumpkin, manager tie and timber department, Rock Island, Chicago. W. A. Penrose was re-elected secretary-treasurer.

BRIDGE SECTIONS consisted of built-up welded stringers and welded deck paved with bituminous concrete.

BONDING hooks were welded to web of outside stringer to hold concrete fascia and railing.

IN THIS FIVE-TRACK BRIDGE . . .

Superstructure Is All Welded

Pennsylvania's first "no-rivets" structure carries heavy traffic electrified line over busy highway in Baltimore

By R. B. RUSSELL

Assistant Office Engineer, Pennsylvania
Philadelphia, Pa.

Considerable savings in steel requirements, plus quicker and easier erection, were among the advantages obtained from the use of all-welded stringer and deck-plate construction on the Pennsylvania's new Mulberry Street underpass at Baltimore.

The new 62-ft structure carries the five electrified tracks of the road's Maryland division over a heavily traveled highway in the southwest section of the city. The project was initiated as a step towards the relief of traffic congestion in this area, particularly at the existing Franklin Street underpass a short distance away.

The structure chosen for the underpass is a steel stringer bridge with a welded wrought-iron-plate floor paved with bituminous concrete. Tracks are supported on ballast. Each side of the underpass is finished with a concrete fascia and railing attached to the outside stringer.

Advantages of the Design

This general type of bridge, utilizing wide-flange rolled beams for stringers, has been used by other roads for a number of similar structures constructed since World War II. It is economical when compared with other types of design, provides a watertight deck, and is light in weight to facilitate the rolling-in of sections, two or more tracks wide, in a minimum amount of time. The latter feature was especially important on this particular installation because of the high density of railroad traffic, the amount of time during which any one track could remain out of service being limited to eight hours.

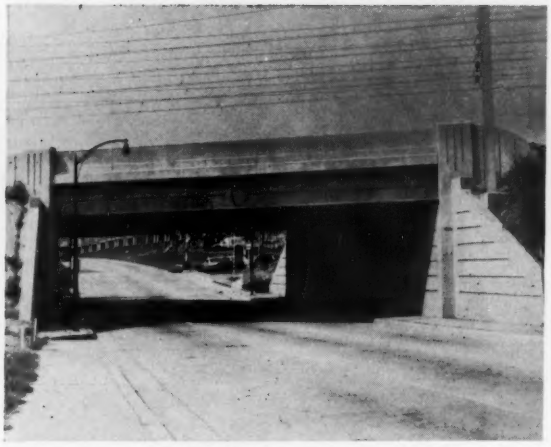
Mulberry street at the underpass is 40 ft wide between curbs with 5-ft sidewalks. The new bridge is skewed to an angle of about 63 deg with the tracks. The structure is designed for the heaviest PRR loading, which approximates Cooper's E-72. The heaviest rolled sections available were of insufficient strength for this span and load. Hence, it was decided to build up stringers 40 in. deep and 62 ft 3 in. long to be placed on 2-ft 8-in. centers.

A comparison between welded and riveted designs indicated that use of welded stringers would result in a 17-per cent saving in the weight of steel. Another distinct advantage of the welded stringer was that a smooth top flange could be obtained for the support of the wrought-iron deck plate without the need for countersunk rivets.

The bottom flange plate of each stringer was welded to the web by a ½-in. fillet weld on each side. The top flange was connected by a tee butt weld reinforced with ⅜-in. fillet welds. Stiffeners were welded by ¼-in. fillet welds, the end stiffeners being welded to both web and flanges, and the intermediate stiffeners to the web only. All welds are continuous.

The underside of the ½-in. wrought-iron deck plate was welded on each side of each stringer flange with a continuous ¼-in. fillet weld. Floor plates were 64 in. wide and were joined by continuous vee welds on the centers of alternate stringers.

A bituminous concentrate paving, varying from 2½ to 1½ in. in thickness, was placed over the plate floor.



COMPLETED underpass provides attractive throughway for heavily traveled three-lane highway.

Half-round perforated wrought-iron drains were installed at the curbs and between tracks to carry water to the low end of the bridge, the grade being 0.5 per cent.

Stringers Welded in Shop

The bridge was fabricated by the Maryland Drydock Company, Baltimore. All welding of built-up stringers was done in the fabricating shop. Shipment was made in units consisting of two or three stringers connected by their welded diaphragms. The wrought-iron deck plates were welded at the site, as were the diaphragms connecting units of stringers.

The superstructure was erected on falsework in two sections, one on each side of the railroad, each section complete with wrought-iron deck plate, bituminous concrete paving, and one track mounted on blocking. The bridge sections were rolled into position on skid bents located just in front of the new abutments and were jacked down onto their permanent rocker bearings.

Railroad traffic was carried on a temporary steel trestle during construction of the concrete abutments. The trestle was constructed without interference to railroad traffic and, because of the presence of the electrified catenary system, with as little use of overhead equipment as possible.

The first step in the construction of the temporary trestle was to substitute 10-in. by 12-in. sawed timbers for the regular track ties. These were placed on 16-in. centers. Wide-flange beams were then placed against the ends of the 10 by 12's, with the timbers resting on continuous blocking laid on the inside bottom flange and wedged tightly against the top flange. Tie rods held the assembly together. The temporary beams were spliced by full butt welds and welded flange-reinforcing plates to form continuous stringers 116 ft 9 in. long. Timber end sills were placed under the stringers on approximately 20-ft centers, and the ground between was excavated to a depth of about 8 ft below top of rail.

Four lines of steel caissons made up of tunnel-liner plate sections were then sunk, one line on each side of the proposed abutments. These were carried to rock approximately 23 ft below top of rail. A 12-in. concrete base was poured in each caisson and steel columns were placed to support the track stringers. Excavation was then carried down to the bottom of the abutment foundations between lines of 4-in. timber sheeting.

At this stage, the temporary track supporting the new superstructure was carried on mud sills at each end, four lines of steel columns, and two lines of short timber bents located on the partially excavated ground between abutments. This excavation was carried down just far enough to clear the new superstructure to be rolled in.

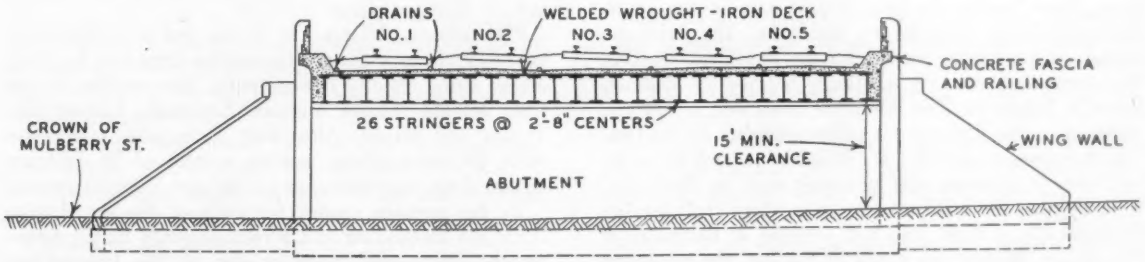
How Superstructure Was Placed

Only one day was required for rolling in each section of the bridge. The two-track easterly portion was the first to be installed, the procedure being as follows:

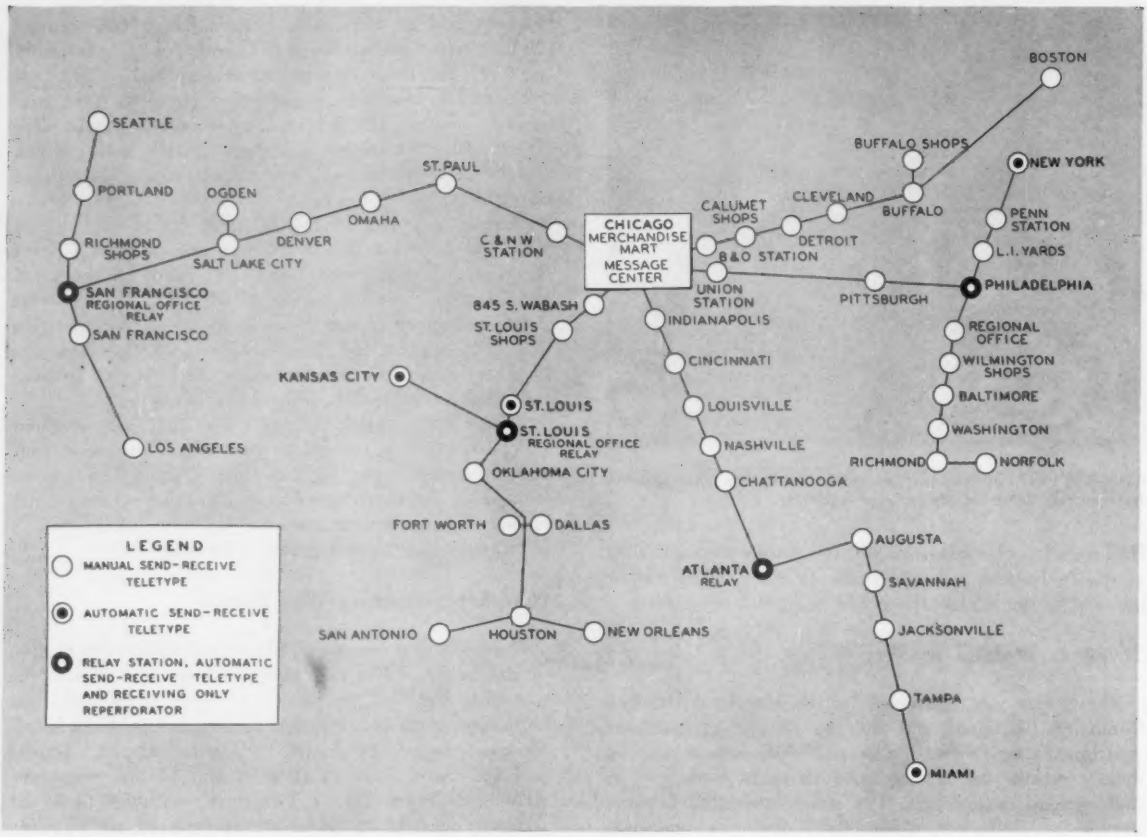
Steel columns and timber bents supporting Track No. 1, the most easterly track, were disconnected and removed and the track was cut at each end of the temporary stringers. Track No. 1 structure was then lifted by wrecker derricks at each end and placed on blocking clear of the new bridge section to be rolled in. Track No. 2 structure was lifted in place and blocked up so as to clear the new superstructure. The new structure, complete with rails and ties for Track No. 1, was then rolled into position, after which Track No. 2 was lowered to blocking placed on the new deck. Both tracks were then connected and placed in service. Ballast was placed later, at which time temporary blocking under the tracks was removed and regular track ties installed in place of the 10 by 12 timbers.

The procedure for rolling in the three-track westerly portion of the bridge was substantially the same. The two bridge sections were joined by welding the diaphragms and deck plates between Tracks No. 2 and No. 3. Construction of the concrete fascia and railing completed the bridge.

The bridge was designed by and built under the supervision of the engineering department of the PRR Eastern Region. The general contractor was A. S. Wikstrom, Inc.



WELDED deck of underpass makes for a completely waterproof structure. Wrought-iron drains carry runoff to sewer.



PULLMAN PRIVATE LINE TELETYPE NETWORK extends to 56 offices, shops and storerooms.

Why Pullman Has Teletype Network

Message center at general office connected to 56 offices and shops throughout the entire country, saving time in operations of company business

The Pullman Company is now using a new nationwide Teletype system over a 9,000-mile network of private-line circuits extending from the general offices in Chicago to 56 offices, shops and storerooms throughout the country.

This new communication system is used in many ways to increase efficiency and improve service to the public. For example: A Pullman passenger was en route from Washington to Baltimore on a Washington-New York train. Upon leaving the train at 7:41 a.m. he discovered he had left his briefcase on the train. The briefcase contained papers he needed for an important meeting that same afternoon. He frantically notified the Pullman office at Baltimore. The Baltimore office sent a Teletype message to the Philadelphia office, advising of the loss. The briefcase was found at Philadelphia at 9.17 a. m. A Teletype message was promptly sent to Baltimore, advising that the briefcase was on a return train leaving Philadelphia at 9:38 a.m. and arriving at Baltimore at 11:30 a.m. Within two hours of the loss, the passenger was notified that his briefcase was being returned. Within four hours the passenger had his briefcase in ample time to attend his meeting.

Within the Chicago general offices, a "building" circuit extends on the same floor from the message center to the following departments: mechanical, purchases and stores and labor relations. From the message center, main circuits extend to Boston, Philadelphia, Atlanta, St. Louis and San Francisco. These five circuits are for direct operation to or from the Chicago message center and 29 offices or shops.

Philadelphia, Atlanta, St. Louis and San Francisco are relay offices with satellite circuits extending to other offices more remote. For example, the satellite circuit from Atlanta reaches Augusta, Savannah, Jacksonville, Tampa and Miami. Altogether, these satellite circuits serve 24 more offices, making a total of 56 Pullman offices, shops or storerooms on the new Teletype system.

In the message center, for each of the six circuits there is a transmitter and a receiving-only typing reperforator. A manual page printer at the transmitting position is called a "monitor," and is used for brief

conversation between operators in cases of trouble. Elsewhere in the message center room are an automatic sending-and-receiving page printer with keyboard, and a receiving-only typing reperforator. These machines are used only for originating messages not served by the "building" circuit. At the four relay stations—Philadelphia, Atlanta, St. Louis and San Francisco—the equipment includes two automatic sending-and-receiving page printers with keyboard, and two receiving-only typing reperforators. At most intermediate points, such as Indianapolis, there is a manual sending-and-receiving page printer with keyboard.

How System Is Operated

A supervisor has charge of the message center. On the average, every 30 minutes a call is made to each of the 29 stations on the five principal outside circuits and the 3 stations on the "building" circuits. On each of these calls, he sends, by tape transmission, all the messages he has for that station. That station then transmits to the message center all the messages it has. All 29 locations are dialed on and off by Chicago message center.

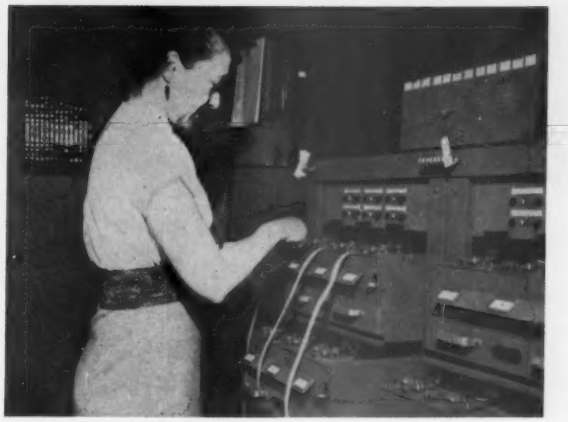
All messages are sent to Chicago message center, then relayed to proper destination. For example, a message from St. Paul to Ogden would first be sent to Chicago, then when Ogden is dialed, the message would be sent to Ogden. All messages are received at the message center in the form of perforated tape with the typed characters appearing on the tape six spaces after the corresponding perforated codes.

The stations on a satellite circuit also have a calling dial and a busy indicating lamp. Any station on a given satellite circuit may call direct any other station on that circuit. For example, Fort Worth may dial Dallas, San Antonio, Houston, Oklahoma City, New Orleans or St. Louis Regional office. If Fort Worth has a message for any station off its own satellite circuit, the operator would dial St. Louis regional relay office and, by striking appropriate keys, would operate the receiving-only typing reperforator at that station. He would proceed to type messages and at end of transmission would dial off. St. Louis regional relay would then relay this message to the Chicago message center where it would be transmitted to proper destination direct or through another relay station.

This communication system is leased by the Pullman Company from the Bell System. The Teletype equipment was made by the Teletype Corporation, and the circuits are set up by the long-lines department of the American Telephone & Telegraph Co. From the message center in the Merchandise Mart in downtown Chicago, the circuits go by wire to the Bell Telephone building at 76th Street and Stewart Avenue, whence circuits go by microwave or land lines depending on what is available. The circuits are set up from 9 a.m. to 5 p.m. daily, Monday through Friday.

Payment for these leased facilities is not on a message basis but on a time basis. With capacity of either 75 or 60 words per minute on each of the six principal lines.

Previously, the Pullman Company conveyed information between its offices by: (1) regular mail; (2) air mail (mostly special delivery); (3) Western Union telegram; (4) Bell TWX which linked 12 offices part time; and (5) company mail, handled by conductors and porters in RRB envelopes.



A MESSAGE ON TAPES feeds into this multiple automatic transmitter at 60 to 75 words each minute.

MESSAGES ARE RECEIVED in tape form from six incoming lines.

The car distribution department receives daily Teletype reports concerning the 4,700 Pullman cars in service. The stores department sends and receives about 150 messages daily in communications with the Pullman offices and five shops. Another big user of the new system is the mechanical department, which formerly used Western Union and long distance phone for communications. The Teletype system, used by all departments, has helped greatly in supplying materials to various Pullman shops and other points, resulting in faster repair of cars for prompt return to service.

As a measure of the new communication system, a count is made of the messages sent and received at the Chicago message center. In a typical week an average of 1,370 messages were handled daily, an average of 170 an hour.

As stated by D. R. Culver, superintendent of transportation of the Pullman Company, "Now we give better service to the railroads and the traveling public by restoring lost property more quickly, satisfying complaints at once, reporting accidents and settling claims promptly, and making repairs or changes in assignment of cars as required to meet emergencies."

CAST STEEL WHEEL PLANT built by the Southern Wheel Division of American Brake Shoe at Calera, Ala.

NEW PLANT TO PRODUCE

Result of Research: X-2 Wheels

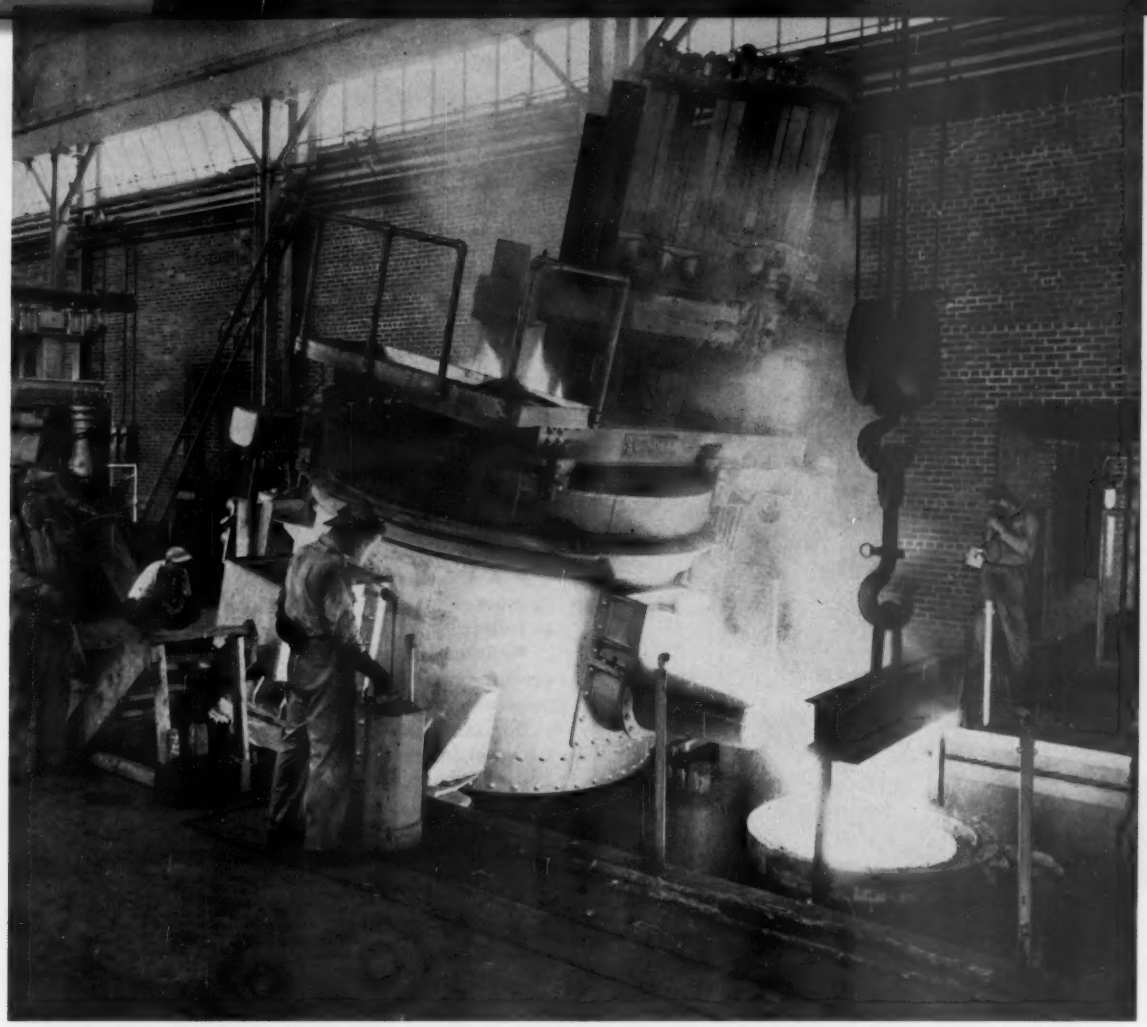
Cast-steel freight car wheel, of 1.5 carbon content, with high wear and brake shoe resistant qualities, developed after 14 years of investigation

The specific objective of a research program inaugurated in 1941 by the American Brake Shoe Company was to perfect a wheel combining the physical advantages of steel with the economic advantages of the most modern casting methods.

At the Brake Shoe Research Laboratories in Mahwah, N.J., metallurgists began a step-by-step investigation of freight service requirements as a means of determining what the ultimate essentials of wheel design should be. Then began a search for the precise metallurgical analysis which would best satisfy these design prerequisites. Six years of experiment and evaluation in the research foundry resulted at last in the development of a 1.5 per cent carbon steel which showed outstanding promise for car wheel application. Physical laboratory tests were encouraging in every respect.

Having proved successful in the laboratory, the new steel still had to perform under actual operating conditions. Experimental field testing was instituted on the Bangor & Aroostoock in July 1947. Test wheels were placed under a 50-ton rack car where they proceeded to accumulate 5,000 miles per month under constant load of 10½ tons per wheel—operating over frozen roadbed in the winter and encountering extremes of temperature found in few other parts of the country. Accelerated testing under these severe conditions provided the basis for further design refinements which, in turn, were tested on the same proving ground.

After two years' successful experience on the B&A, the scope of field testing was expanded through agreements with individual railroads handling special cars over assigned routes. Further extension of field test came in in 1951 when the AAR Committee on Wheels granted permission for placement of 1,000 1.5 per cent carbon cast



POURING a heat from an electric furnace.

steel wheels in experimental interchange service, designating this type of wheel the AAR-X2. Later in 1953, anticipating full-scale production of the X-2 wheel, the committee increased the authorized total to 100,000.

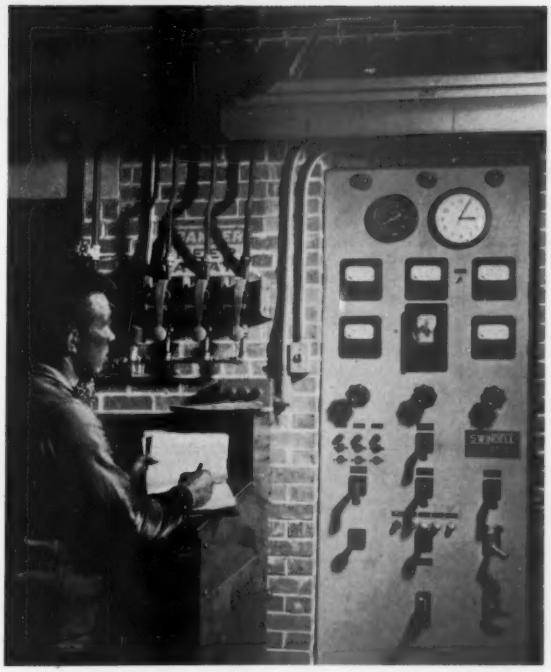
It was American Brake Shoe's policy in pursuing the proof testing of this new wheel, to place in service only a limited number of the originally authorized 1,000 total so that all wheels in service test could be frequently and carefully observed. In this way performance could be measured throughout the service life of each wheel and compared directly to that of standard wrought steel wheels running in each test car truck on a 50-50 basis. Altogether, 202 of the AAR-X2 wheels, made to a standard analysis and metallurgical structure, have been tested throughout the United States under 49 cars representing a variety of standard types.

As of April 1955, after somewhat over 4½ years of actual field testing, all test cars had accumulated a total of 5,200,000 car-miles, or an average of 106,000 miles per car.

Two test cars have averaged 333,000 miles each on the original AAR-X2 wheels. No test wheel failures have occurred.

Features of the New Wheel

The metal for X-2 wheels is melted from cold stock in electric arc melting furnaces. The normal chemical analysis of the metal used in the wheel is:



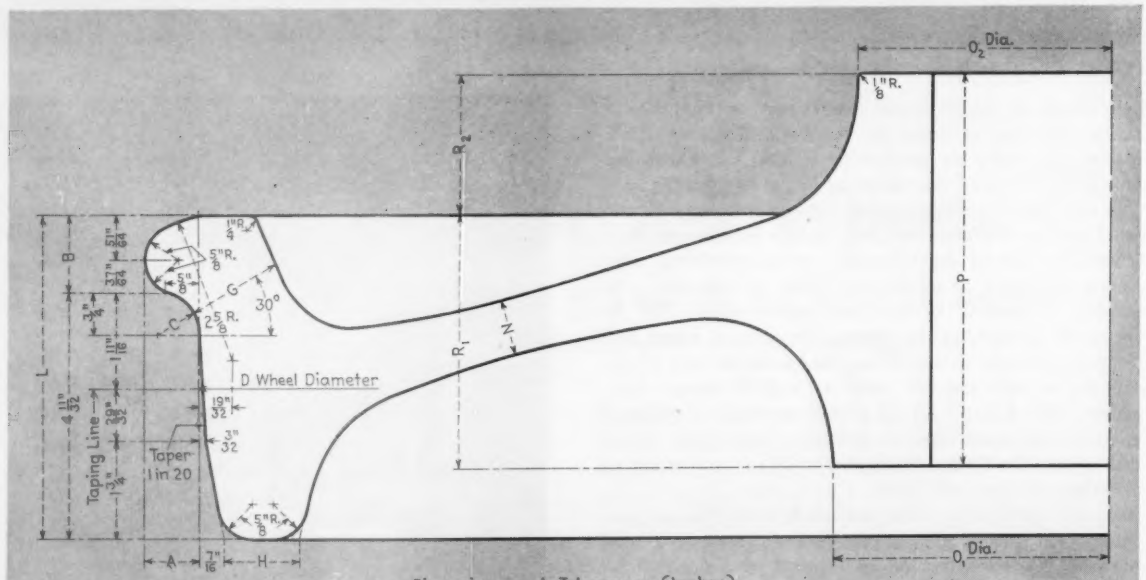
OPERATOR RECORDS heat information indicated on electric furnace control panel. Each arc furnace requires a separate control and power system.

MACHINING tread and bore of cast steel wheel simultaneously on Bullard vertical turret lathe.

Total Carbon 1.35 to 1.55%
Manganese, not less than 0.50%
Silicon 0.30 to 0.50%
Phosphorus, not over .07%
Sulphur, not over .07%

This metal is similar to common die steels which, like railroad wheels, must withstand a combination of heat, abrasion and impact. Its physical properties include tensile strength ranging between 100,000 and 120,000 psi, elongation from 4 to 6%, and yield point of 60,000 to 70,000 psi. The metallurgical structure is uniform from flange to hub and the hardness runs in the neighborhood of 245 to 255 Brinell. Advantages claimed for the 1.5 carbon wheel are:

- Safety, represented by conservative design, inherent strength, and proved record in road tests averaging over 100,000 miles per test car.
- A combination of modern foundry techniques and time-tested casting methods which result in lower costs to railroads.
- Automatic machining of all wearing surfaces for precise dimensional control, unsurpassed rotundity, and outstanding dynamic balance.
- Exacting heat treatment for tough, dense, homogeneous steel from flange to hub, exhibiting uniformly superior wearing qualities. No transition areas.
- Conventional steel wheel shop practice for taping, boring and mounting. (Three standard tapes.)
- Identifying markings cast in bold letters on back plate where they will not be obscured by grease and dirt.
- Wear resistance equal to or greater than that of any steel wheel, plus excellent resistance to brake shoe heating.



Dimensions and Tolerances (Inches)

Car Cap	A	B	C	D	G	H	L	N	O_1	O_2	P	R_1	R_2	Min. Hub Wall	Max. Finish Bore
40 T	$1^{+1/16}_{-0}$	$1\frac{3}{8}{}^{+1/32}_{-3/32}$	3/4	33" +14 Tapes 5%-5	1 3/4	1 3/8	$5\frac{23}{32}\pm\frac{1}{8}$	1 Min.	$10^{+1/2}_{-0}$	$9\frac{1}{4}{}^{+1/2}_{-0}$	$7\pm\frac{1}{4}$	$4\frac{1}{2}{}^{+0}_{-1/4}$	$2\frac{1}{2}\pm\frac{1}{4}$	1	$6\frac{5}{8}$
50 T	$1^{+1/16}_{-0}$	$1\frac{3}{8}{}^{+1/32}_{-3/32}$	3/4	33" +14 Tapes 5%-5	1 3/4	1 3/8	$5\frac{23}{32}\pm\frac{1}{8}$	1 Min.	$10^{+1/2}_{-0}$	$9\frac{1}{4}{}^{+1/2}_{-0}$	$7\pm\frac{1}{4}$	$4\frac{1}{2}{}^{+0}_{-1/4}$	$2\frac{1}{2}\pm\frac{1}{4}$	1	$7\frac{1}{8}$
70 T	$1^{+1/16}_{-0}$	$1\frac{3}{8}{}^{+1/32}_{-3/32}$	3/4	33" +14 Tapes 5%-5	1 7/8	1 1/2	$5\frac{23}{32}\pm\frac{1}{8}$	1 Min.	$10\frac{1}{2}{}^{+1/4}_{-0}$	$10\frac{1}{2}{}^{+1/4}_{-0}$	$7\pm\frac{1}{4}$	$4\frac{1}{2}{}^{+0}_{-1/4}$	$2\frac{1}{2}\pm\frac{1}{4}$	$1\frac{1}{8}$	$7\frac{3}{4}$

No indication of thermal checking or cracking in treads on any service test.

To provide facilities for producing the new wheels, Southern Wheel Division of American Brake Shoe in June 1953 began construction of a new plant in Calera, Ala. It is located on a 45-acre site 35 miles south of the Birmingham steel center. Two railroads, the L&N and Southern, serve the property. The plant has a floor area of about 75,000 sq. ft.

Initial plant operation on a trial scale began in February 1954. With basic production methods having been largely resolved during earlier pilot work in the Mahwah experimental foundry, rapid progress was made in getting Calera production under way. By April 1, 1955, output reached approximately 700 wheels per week. At full capacity, the plant will be able to produce close to 400 wheels a day.

Production Techniques

Material storage is concentrated at the east end of the building. Molding and core sands, brought in by rail, are stored in enclosed hopper bins with a present capacity of about 370 tons. At this end of the plant, too, are bins for steel scrap, melting furnace refractories, and various alloy components for the furnace charges.

Near the storage area, resin-bonded hub cores are made in aluminum boxes by a bench core blower. They are ready for use after only a few minutes baking in a conveyorized, dielectric core oven with capacity of 90 cores per hour. Space and handling are both reduced since there is no need for core storage and consequently no necessity for storage racks. Cores are transferred to the molding area on pallets.

Two types of sand are used in the wheel molds—facing sand and backing sand. The former is a fine textured new-sand mix which is employed, as the name implies, for the face of the mold next to the pattern. It produces a smooth surface. Backing sand, which comprises the major portion of the mold, is added on top of the facing. Both types, together with their bonding agents, are mixed in an automatic muller which is gravity fed from overhead storage hoppers.

An electronic moisture device checks each batch of sand and then adds the proper amount of water. After it is mulled, the sand is dropped into a pressure tank from which it is then blown through a pneumatic pipe system to a storage bin at the molding station. Periodic daily sand tests plus carefully maintained records assure close control of this important production element.

At the molding station an automatic disc-type hydra slinger produces consistently uniform wheel molds at a rate of about 60 per hour. Copes (top halves of molds) and drags (bottom halves) are rammed separately on a rotating turntable beneath the sand-slinger. During this operation, the flask (cope or drag) and pattern rotate while the slinger head travels radially back and forth. The momentum of the sand entering the flask at high velocity causes it to become tightly packed around the pattern. Mold hardness, an important variable, can be controlled through an adjustable cam which governs slinger head travel. Frequent hardness checks are performed on a routine basis. Approximately 800 pounds of sand go into each mold. After being rammed, the cope and drag are assembled to form the completed mold, clamped, and then pushed on a roller conveyor to the pouring station.

TAPE SIZE of finished cast-steel wheel is determined by operator. Size will be stencilled on plate of wheel.

Flasks of conventional type are used together with tread chillers—a metal ring around the periphery of the mold. The latter produces dense tread metal as well as an accurate contour and promotes directional solidification.

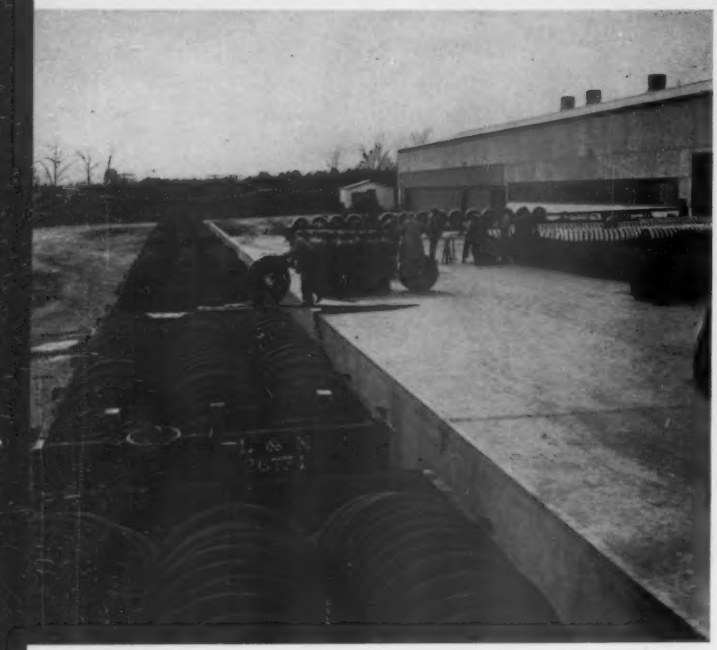
Electric furnace melting is used to attain precision in metal analysis. Although provision has been made in plant design for later installation of cupolas—with a view toward duplexing the metal—current practice has thus far proved successful.

Charges for the electric furnaces are made up adjacent to the scrap bin in bottom-drop charging buckets. Selected charges, usually containing a large percentage of broken-up scrap steel wheels, are loaded into the buckets with an electromagnet, and are weighed as loaded. From the buckets the charges are dropped into a furnace which has been prepared for that particular heat.

A battery of four 3,500-4,000-kva, 9-ft, top-charging arc melting furnaces have been installed. Three are currently in operation. These have a nominal capacity of 6 to 7 tons and require approximately 60 minutes to melt down a cold charge. Actual furnace capacity is determined by the thickeness of the refractory insulating walls. Each 12-wheel heat is melted under closely controlled basic oxidizing conditions with careful attention to temperature and analysis. Alloy additions are made at specified intervals during the heat.

Shortly before a heat is tapped, samples are taken from the furnace to the chemical laboratory, which furnishes at least two preliminary carbon determinations for that heat. The laboratory also performs a comprehensive chemical analysis for each heat poured, thereby assuring a uniformly precise check of chemical composition from day to day.

When the steel is ready to be tapped from the furnace



SHIPMENT of cast-steel wheels being loaded at the new plant.

(at a temperature of about 3,000 deg F), it is drained into a teapot-type reservoir ladle. From there it is transferred to bottom-pour ladles, each holding enough metal for three wheels. Then, at a temperature ranging between 2,830 and 2,760 degrees, it enters the mold by gravity through a specially designed feeding head at the center. Approximately 15 seconds are required to fill each mold.

A novel gating arrangement, originating from the center feeding head of the wheel mold, distributes the metal evenly to all parts of the mold cavity. This procedure is said to produce a uniformly sound casting without the need for auxiliary risers. One important component in this gating system is a strainer core to prevent passage of slag into the mold.

As mentioned earlier, the chiller ring around the outside of the mold causes solidification to occur from the outer regions toward the center. The last part of the wheel to freeze, therefore, is that area directly beneath the feeding head with the consequent result that internal shrinkage is eliminated.

A sample Y-block is also poured from every heat. This block is subsequently used as the basis for physical test specimens and chemical analysis drilling—all for the purpose of arriving at a complete physical and chemical evaluation of the steel poured from that heat.

Following pouring, the molds travel toward the shakeout on a timed conveyor, about 55 minutes being required for complete solidification to take place. After the proper time interval, the large hub riser (feeding head) is detached from the casting by "cracking" open the mold. Shortly thereafter the solidified wheel, still red hot, is removed from the mold in an automatic shakeout which is controlled by pushbuttons and photo-electric eyes. Copes are stacked three-high on a storage conveyor to cool for the next day's production. Drags are returned by gravity conveyor to the molding area. Sand travels by belt conveyor back to the storage bins to be reclaimed for further use. Upon emerging from the shakeout cabinet, the wheel is sandblasted, and the pouring gates in the hub bore are removed with a flame-cutting jig.

The wheel is now ready for annealing and heat treating. Placed in an insulated, unit-type annealing pit after shakeout, the wheel is permitted to cool slowly to a temperature no greater than 1,000 degrees, a process requiring perhaps 10 hours. Each pit holds 12 wheels.

Following annealing each wheel is subjected to an electronically controlled, two-stage heat treatment. This refines the grain structure and spherodizes the carbides in order to realize the full degree of wear resistance and toughness inherent in the metal. Presently used for this purpose are two car-bottom type furnaces, each with a capacity of 72 wheels in 24 hours. Installation of additional furnaces will be completed late in June. Electronically recorded time-temperature charts are carefully analyzed by plant metallurgists as a daily control measure.

Fifteen minutes after wheels are taken from the heat treating furnaces, the hub of each wheel is cooled for five minutes by a specially developed water spray device. This operation induces favorable stress distribution as well as providing for easy, uniform machinability within the bore.

As with any heat treated casting, the X-2 wheel must be cleaned prior to final inspection. A shot blast machine is utilized for that process. The machine effectively removes heat-treating scale and simultaneously peens the surface to an attractive luster. This requires about one minute per wheel.

As an added precaution during the early pilot stages of plant operation, a representative wheel from each heat was submitted to Magnaglo examination. These early precautionary examinations served merely to demonstrate that the X-2 wheel did not suffer significantly from plate defects susceptible to Magnaglo detection. Consequently, only an occasional wheel is now inspected by this means.

Machining Methods

From the shot blasting station the wheel proceeds by gravity conveyor to the machining area. Two fully automatic vertical turret lathes are presently set up for wheel machining and two additional are scheduled for future installations. In a single cyclic operation requiring about 12 minutes, each wheel is automatically rough bored, finish machined on front hub and rim face, and precision turned to standard AAR steel wheel tread and flange contour with a secondary taper. The diameter of the finished tread thus falls within a limited range of the pre-determined tape sizes. Close control of dimensional accuracy and rotundity follows as a logical consequence of this machining treatment.

After machining, the wheel continues by gravity conveyor to the inspection station. Here it is weighed, stenciled to show tape size, and then meticulously examined by the resident inspector to check conformity to dimensional requirements as well as adherence to rigid standards of physical soundness and appearance. Finished wheels roll on a gravity monorail out to the shipping platform where they are picked up by lift truck and placed in storage. The inspector reviews all chemical and physical test records and heat treatment charts before releasing wheels for shipment.

Here's Long Life!

A. T. & S. F. Flat Car
53' 6" long—50-ton capacity

New Santa Fe Flat Cars With One-Piece Underframes are

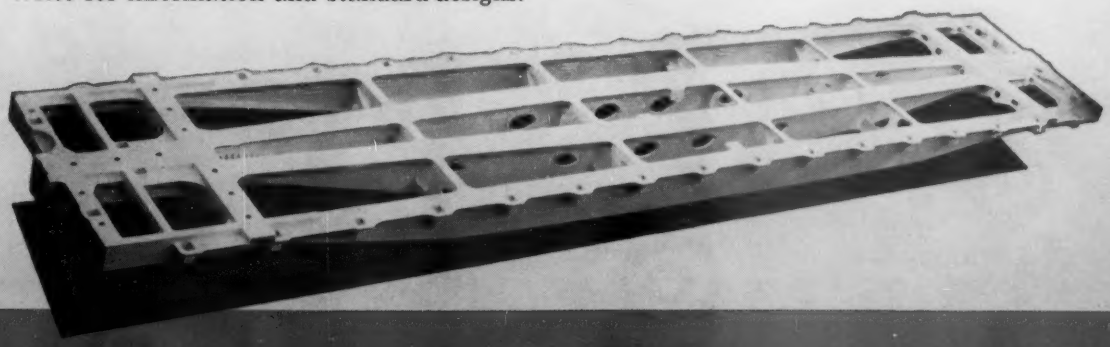
BUILT TO LAST!

Modern railroading is particularly tough on freight cars and flat cars are often called the workhorse on rails. The backbone and foundation of the flat car is the underframe. COMMONWEALTH One-Piece Cast Steel Underframes combine great strength with minimum weight and provide *maintenance free* performance.

Other advantages of COMMONWEALTH Underframes include unusually strong draft sills, draft gear pockets, striking castings and bolsters — flared center sills and wide top members providing better support for decking and loads — cast steel assures highest resistance to corrosion.

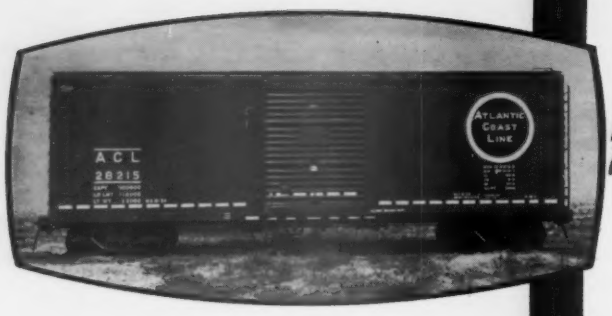
Thousands of flat cars with COMMONWEALTH Cast Steel Underframes — in service for years — prove these facts. Build *your* flat cars to last longer. Specify COMMONWEALTH Underframes. Write for information and standard designs.

One-Piece Cast Steel Underframe



GENERAL STEEL CASTINGS

Granite City, Ill. Eddystone, Pa.



5 GOOD REASONS FOR REFLECTORIZING YOUR ROLLING STOCK with PRISMO

1 SAFETY AT YOUR GRADE CROSSINGS

Reflectorize with gleaming Prismo. Apply all-weather, all-hour visibility to your rolling stock, markers and signs . . . make them safer by letting them be seen . . . overcome the serious problem of nighttime grade-crossing accidents!

2 A MOVING BILLBOARD ADVERTISING YOUR ROAD

Don't let the darkness hide your identification! Let the name of your road and your slogans be seen "after hours" by applying a coat of glittering Prismo. Tremendous attention value to your name gleaming along in the night.

3 REDUCED INSURANCE RATES

Automobiles running into the sides of rolling stock, at night, accounted for 32% of all railroad accidents in 1948-51 . . . have caused a sharp increase in insurance rates. Apply highly-visible Prismo, increases safety at crossings, reduces your insurance rates!

4 QUICKER IDENTIFICATION IN THE YARD

When your rolling stock is marked with shining Prismo there's no trouble making identification at the "hump". The brilliant gleam of Prismo reflects car number, etc. from long distances in all kinds of weather.

5 LOWER PRICED REFLECTORIZATION

Prismo saves you 75% on reflectorizing costs! Prismo is easy and inexpensive to apply and lasts years and years without peeling. Wears so well that it will outlive four coats of ordinary marking material. Prismo is the BEST for long-lasting, low-cost reflectorizing.

PRISMO REFLECTIVE RAILWAY MARKINGS

For complete information, send today for your free copy of Bulletin #R-754.

1328

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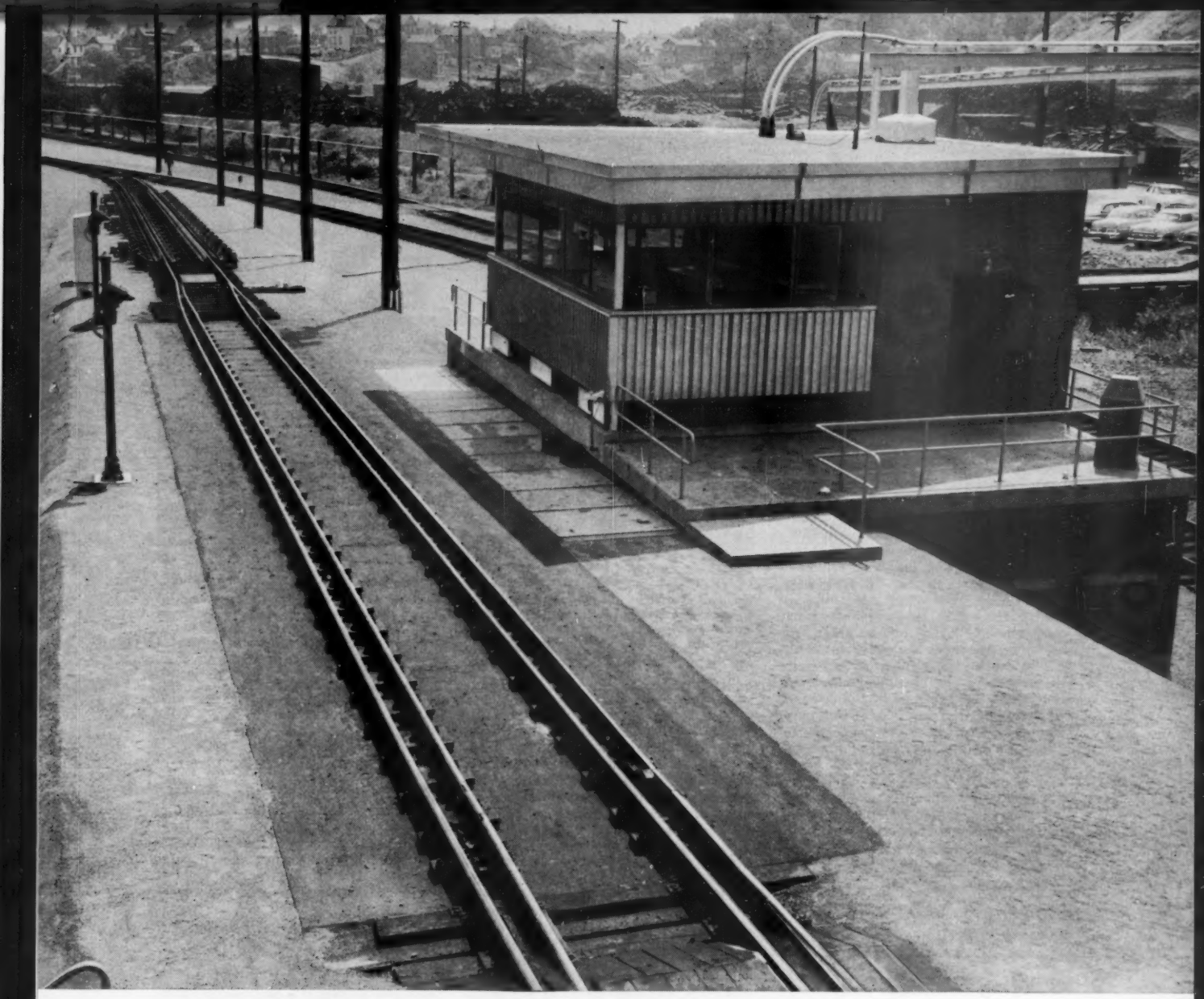

Headquarters for a freight train 10,000 miles long

Headquarters for Yardmaster, Weighmaster, Hump Conductor and Yard Clerk, this new Fairbanks-Morse Track Scale on the Union Railroad is the center of activity in this busy terminal.

All traffic passes over this 200-ton capacity scale located in the 4 million dollar classification yard located in East Pittsburgh. In a year that tonnage averages more than 70 million tons, or a freight train 10,000 miles long.

When weighing a whole train or LCL, check with your Fairbanks-Morse Railroad Sales Engineer. He can draw on the experience gained in installing more scale capacity than all other scale manufacturers combined. Fairbanks, Morse & Co., 600 South Michigan Ave., Chicago 5, Ill.

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a name worth remembering when you want the best

RAIL CARS AND RAILROAD EQUIPMENT • DIESEL LOCOMOTIVES AND ENGINES • ELECTRICAL MACHINERY • PUMPS • SCALES • WATER SERVICE EQUIPMENT • MAGNETOS

Rates & Fares

(*Continued from page* 17)
the Ex Parte 175 increases on bituminous coal (*Railway Age,* March 28, page 11).

In attacking the railroads' motion, the NCA reply, and many of the others filed, stressed their objection to the railroads' request that the commission act without holding further hearings. The NCA asked the commission to deny the railroads' petition and institute hearings on the issue of discontinuing the increases on coal. It suggests that the commission follow up on these hearings with others on the whole issue of whether to continue the rate increases.

As reported in *Railway Age,* April 25, page 7, the railroads asked the commission to make the increases (generally amounting to 15% but only 12% on bituminous) a permanent part of the rate structure. The increases are now due to expire December 31.

The coal association repeated its earlier contention that revenues from coal rates are being used to offset rail losses in passenger and lcl operations.

The NCA reply called attention to the report of the President's Cabinet Committee on Transport Policy and Organization and said the ICC should give consideration to its proposals to allow the railroads to abandon profitless operations and offer volume rates more extensively. It further called for amendment of Section 22 of the Transportation Act under which, it alleged, the railroads are competing with each other for government business.

"ONE CAR—ONE BUILDING" tells the story on this shipment of 10-prefabricated steel buildings manufactured by the Wonder Building Corporation of America for the government of Mexico. The buildings, 60 by 190 ft, and intended for grain storage, are made of long and short curved steel sheets and uniformly sized nuts and bolts, all packed on skids to permit easy loading and unloading of the open-top cars.

New Facilities

Building Planned Over PRR's New York Track

Title to two blocks of Pennsylvania Railroad trackage near Pennsylvania Station, New York, has been taken by Webb & Knapp, real estate firm, which last week announced plans to construct over the track a new building for general business purposes. No date has been set for start of the building, which is expected to cost about $100,000,000 and to contain more space than the Empire State building.

Canadian National.—Among major projects currently under way is a new station at North Battleford, Sask., to replace a frame structure built in 1908. The new two-story brick building, started in 1954, will accommodate passenger, express and communications departments of the railroad. The upper floor will provide office space for the assistant superintendent, roadmaster and yardmaster.

Work is continuing at Vancouver, B.C., on a diesel locomotive maintenance shop, to be equipped with high-lift jacks and crane facilities. Completion is scheduled for early in 1956. Work is expected to get under way soon on a proposed new ferry slip to handle barges operating in the Vancouver area.

A two-story office building is to be built at Calgary, Alta., to provide accommodations for the freight and communications departments. It is scheduled for occupancy early next year.

At Winnipeg a viaduct for two extra tracks is being constructed at the passenger station; station facilities are being extended to the rear of existing buildings, and new elevators are being installed. Other undertakings in the Winnipeg area are construction of a grit and blast furnace at Transcona shops and installation of centralized traffic control in the Winnipeg terminals.

New car department buildings at Nutana yard, Saskatoon, are scheduled for completion this year. New water and fueling facilities for diesel locomotives in transcontinental passenger service are being provided between Armstrong, B.C., and Vancouver. Yard extensions are being made at Calder yard, Edmonton, Alta., and at Atikokan, Ont. Passing tracks are to be extended on the Quibel, Minaki, Touchwood and Clearwater subdivisions.

A 105-ft deck-plate girder bridge at MP 9.3 on the Skeena subdivision in British Columbia also is scheduled for completion this year. Automatic permissive block signalling between Blue River, B.C., and Kamloops Junction (139.4 miles) will be completed and an additional 74.7 miles between Hope and Port Mann will be started.

Securities

Boston & Maine.—*Retires Series II Bonds.*—All outstanding B&M Series II 5% bonds, aggregating $1,237,000, and maturing May 1, became eligible for retirement by cash payment on that date of their full principal amount. Accrued interest was paid separately.

Application

NEW YORK, CHICAGO & ST. LOUIS.—To assume liability for $4,080,000 of equipment trust certificates to finance in part purchase of the following equipment at an estimated total cost of $5,119,504:

	Description and Builder	Estimated Unit Cost
29	1,750-hp diesel-electric road-switchers (Electro-Motive Division, General Motors Corporation)	$158,752
3	1,750-hp diesel-electric road-switchers (Electro-Motive)	171,349

The certificates, dated June 15, would mature in 30 semiannual installments of $136,000 each, beginning December 15. They would be sold by competitive bidding, with interest rate to be fixed by such bidding.

Authorizations

MAINE CENTRAL.—To issue $1,700,000 of 4⅞% first mortgage and collateral bonds, due 1978, through negotiated purchase agreements. Proceeds of the sale are to be used to redeem at 104.6% all the road's outstanding first mortgage 5% bonds, in the amount of $1,408,000 (*Railway Age,* March 7, page 56). Balance of the proceeds is the be used in acquisition of the St. Johnsbury & Lake Champlain, purchase of which was authorized by the ICC under a separate order (*Railway Age,* April 25, page 14).

WABASH.—To assume liability for $1,530,000 of equipment trust certificates to finance in part purchase of 250 50-ton box cars at an estimated total cost of $1,929,000 (*Railway Age,* April 18, page 70). Division 4 approved sale of the certificates for 98.66 at an interest rate of 2¾% (the bid of Salomon Bros. & Hutzler and

three associates), which will make the annual cost of the proceeds to the railroad approximately 2.98%. The certificates were reoffered to the public at prices yielding from 2.15 to 3%, according to maturity.

Security Price Averages

	April 26	Prev. Week	Last Year
Average price of 20 representative railway stocks	97.01	96.82	61.60
Average price of 20 representative railway bonds	95.86	98.92	94.31

Railway Officers

ATLANTIC COAST LINE. — James L. Hunt has been appointed industrial geologist at Wilmington, N.C.

CANADIAN NATIONAL — William M. Armstrong, assistant vice-president, personnel, has been named assistant vice-president, research and development, with headquarters as before at Montreal. **W. S. Ziegler,** manager of the Newfoundland district at St. John's, succeeds Mr. Armstrong as assistant vice-president, personnel, at Montreal. **E. J. Cook,** assistant general superintendent, Central region, succeeds Mr. Ziegler as manager of the Newfoundland district.

Charles Lyon, freight traffic representative at Winnipeg, has been appointed district freight agent at Moose Jaw, Sask., succeeding **T. H. Mobberley,** who has been transferred to Edmonton, Alta., to replace **Robert Reid,** named division freight agent at Regina, Sask.

H. H. Heckman, senior methods officer, and **F. R. Beaman,** auditor passenger accounts, have been appointed administrative assistants. **F. P. Connolly,** assistant auditor, has been named auditor passenger accounts, and **John Templeton** has been appointed chief accountant of the communications department.

J. W. Demcoe, operation assistant at Montreal, has been appointed general superintendent of the Northern Ontario district at North Bay, Ont., succeeding **W. J. Hotrum,** assigned to special duties. **C. E. Shaver,** assistant superintendent at Hamilton, Ont., has been appointed superintendent terminals at Black Rock, N.Y., succeeding **H. T. Walton,** who has been promoted to superintendent of the Stratford division at Stratford, Ont., replacing **J. F. Curran,** who has been transferred to the St. Lawrence division at Montreal. Mr. Curran succeeds **A. M. Shea,** assigned to special duties. **E. P. Burns,** assistant superintendent at Jonquiere, Que., has been promoted to superintendent of the Hornepayne division at Hornepayne, Ont., succeeding **W. H. Murray,** who has been transferred to the Capreol division at Capreol, Ont. Mr. Murray succeeds **A. L. Enborg,** who has been appointed superintendent transportation of the Northern Ontario district at North Bay, replacing **A.E.McCullough,** retired.

CHICAGO & ILLINOIS MIDLAND.—C. D. Forth, general attorney at Springfield, Ill., has been appointed general counsel there.

DULUTH, SOUTH SHORE & ATLANTIC.—Bertel E. Pearson, acting supervising engineer at Marquette, Mich., has been promoted to chief engineer there, succeeding **S. P. Berg,** whose resignation was announced in *Railway Age,* November 15, 1954.

GRAND TRUNK WESTERN. — David Kantor, traveling freight agent at Atlanta, Ga., has been appointed general agent, freight department, at Battle Creek, Mich., succeeding the late **B. K. Pickens.**

KANSAS CITY TERMINAL.—R. O. Ripley, secretary and auditor at Kansas City, Mo., has retired after 53 years of service. His successor is **W. W. MacCallum.**

MAINE CENTRAL - PORTLAND TERMINAL.—Upon the retirements April 1 of **Horace N. Woodbury,** comptroller, and **Ralph B. Lunt,** treasurer, **Horace N. Foster** has become comptroller and treasurer at Portland, Me. (*Railway Age,* December 20, 1954, page 43). **Edward C. Paine** has been appointed assistant comptroller; **Martin A. Holmes** has been named examiner, and **Gordon G. Williams** has become cashier.

MINNEAPOLIS & ST. LOUIS.— A. P. Christopherson, special accountant, has been named general accountant at Minneapolis.

MISSOURI - KANSAS - TEXAS. — A. B. McCormick has been named assistant superintendent of the Northern division at Franklin, Mo., succeeding **Raymond B. George,** whose appointment as superintendent of the North Texas division at Denison, Tex., was reported in *Railway Age,* April 18.

PULLMAN COMPANY. — Herbert S. Anderson, general counsel at Chicago, has been elected vice-president and general counsel.

SOUTHERN PACIFIC.—J. M. Day, assistant general storekeeper, who has been promoted to general storekeeper at San Francisco (*Railway Age,* February 28, page 38).

RAILWAY EXPRESS AGENCY. —H. F. Stanton, chief commercial agent at Baltimore, has been appointed general agent, sales, at Cleveland.

W. A. Benson, vice-president—accounting at New York, retired April 30 after 43 years of service.

SEABOARD.—C. Y. Shafer, office manager, freight traffic department, at Norfolk, Va., has been appointed assistant general freight agent at that point. **W. E. Lord,** commercial agent at Charleston, S.C., has been appointed general agent at San Francisco.

SOUTHERN PACIFIC. — F. E. Watson, general passenger agent at Oakland Cal., retired April 30 after 44 years of service, and has been succeeded by **Carl O. Olsen,** passenger traffic manager at Chicago. **William F. Coyne,** passenger traffic manager at New York, succeeds Mr. Olsen at Chicago, and **Joel Newman,** general agent at New York, replaces Mr. Coyne as passenger traffic manager there. **Robert L. Wynkoop,** district passen-

Frank E. Kalbaugh

We no longer get orders for carbide

. . . but, throughout the nation, railroads rely on Graybar for procurement of lamps for every lighting need.

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ger agent at New York, succeeds Mr. Newman as general agent.

As reported in *Railway Age* April 18, **Frank E. Kalbaugh** has been appointed general manager of Southern Pacific Pipe Lines, Inc., at Los Angeles. Mr. Kalbaugh joined the SP in 1919 as clerk at Bakersfield, Cal. After advancing through a number of operating department positions, he became assistant superintendent, Western division, in 1944; superintendent transportation at San Francisco in 1947, and superintendent, Salt Lake division, in 1948. He has been on leave of absence since September 1953, serving as general manager of the Alaska Railroad.

SOUTHERN PACIFIC TRANSPORT COMANY.—George D. Clark, district manager of Pacific Motor Trucking Company at San Francisco, has been elected vice-president and general manager of Southern Pacific Transport Company, succeeding **T. P. Kelly,** who has returned at his own

George D. Clark

request to the SP's Texas & Louisiana rail lines as assistant manager of personnel at Houston. Mr. Clark joined PMT in 1938 as foreman at Phoenix, Ariz. After serving as superintendent at Tucson and Phoenix, and district manager at Tucson, he became district manager at San Francisco in 1954.

OBITUARY

J. V. Hanrahan, supervisor of stores of the **Jersey Central Lines** at Elizabethport, N.J., died March 28.

George W. New, 60, division storekeeper of the **Missouri Pacific** at Houston, Tex., died April 15 in St. Joseph's Hospital in that city, after a six-week illness.

George W. Spachman, 56, agent of the Chicago district of the **Western Weighing & Inspection Bureau,** died April 20 at Chicago.

Malachy Leo Tynan, 64, general purchasing agent of the **Railway Express Agency** at New York, died April 20, in San Francisco, while on a business trip.

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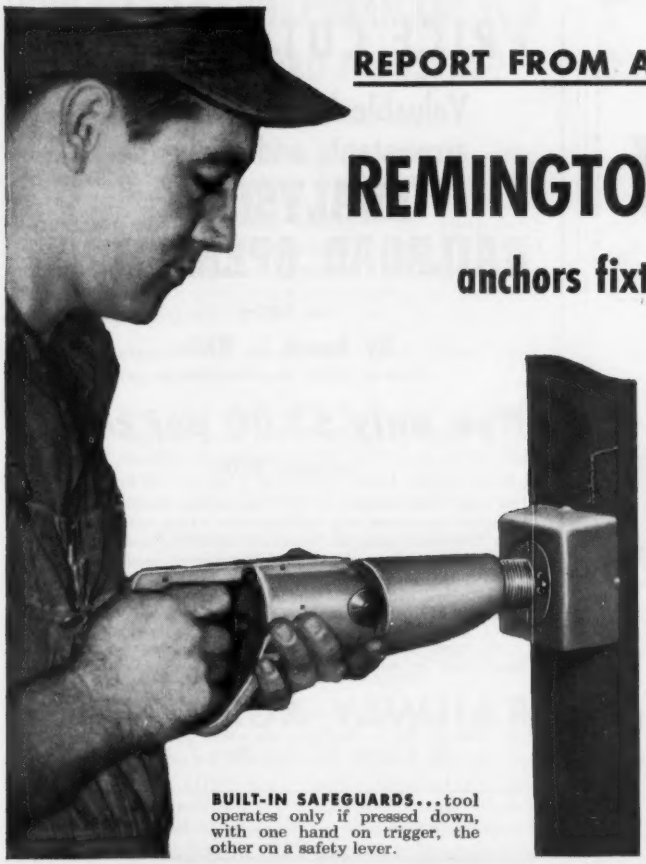

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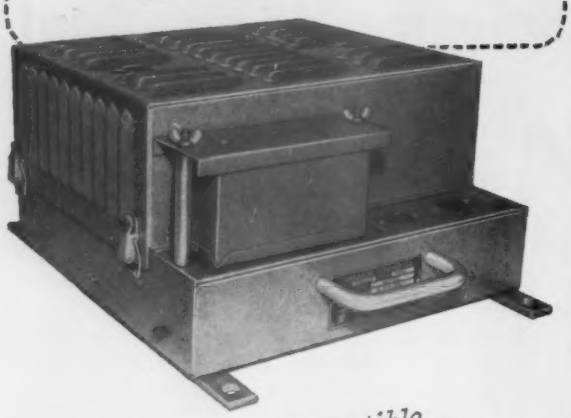

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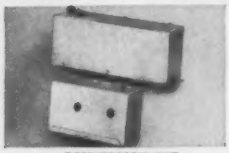

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Alco Products, Inc. 14
Agency—Hazard Advertising Co.
American Steel Foundries 24, 25
Agency—Erwin, Wasey & Co., Ltd.
American Steel & Wire Division,
U. S. Steel Corp. 28
Agency—Batten, Barton, Durstine & Osborn, Inc.
American Telephone & Telegraph Co. 20
Agency—N. W. Ayer & Son, Inc.
Armco Steel Corp. ..... Inside Front Cover
Agency—N. W. Ayer & Son, Inc.

Bethlehem Steel Co. 1
Agency—Jones & Brakeley, Inc.
Boyer, R. H. 73
Byers Co., A. M. ..... Front Cover
Agency—Ketchum, MacLeod & Grove, Inc.

Caterpillar Tractor Co. 12
Agency—N. W. Ayer & Son, Inc.
Chicago Steel Service Co. 74
Agency—Fred J. Ebersold, Inc.
Classified Advertisements 73
Columbia-Geneva Steel Division,
U. S. Steel Corp. 28
Agency—Batten, Barton, Durstine & Osborn, Inc.
Cornell Dubilier Electrical Corp. 72
Agency—Friend, Reiss, McGlove Adv.

Du Pont De Nemours & Co. 22
Agency—Charles L. Rumrill & Co., Inc.

Edgewater Steel Co. 33
Agency—Walker & Downing
Electric Storage Battery Co. 40
Agency—Geare Marston, Inc.
Electro-Motive Div., General Motors Corp. 18, 19
Agency—Arthur Kudner
Esso Standard Oil Co. ..... Inside Back Cover
Agency—McCann, Erickson, Inc.

Fairbanks-Morse & Co. 67
Agency—The Buchen Co.

General American Transportation Corp. 44
Agency—Weiss & Geller, Inc.
General Steel Castings 65
Agency—Ohleigh R. French & Associates
Gould National Batteries, Inc. 32
Agency—Hutchins Advertising Co., Inc.
Graybar Electric Co. 70
Agency—G. M. Basford Co.

Hunt, Robert W. 73
Hyman-Michaels Co. 72

Iron & Steel Products, Inc. 73

Jackson Vibrators Inc. 4
Agency—Stevens, Inc.

Linde Air Products Co. 30
Agency—J. M. Mathes, Inc.

Magnus Metal Corp. 6
Agency—Marsteller, Rickard, Gebhardt and Reed, Inc.

New York Central 26, 27
Agency—J. Walter Thompson Co.

Portland Cement Assn. 34
Agency—Roche, Williams & Cleary
Prismo Safety Corp. 66
Agency—Michener & O'Connor, Inc.

Railway Education Bureau, The 73
Reiser, Jean 73
Remington Arms Co., Inc. 71
Agency—Batten, Barton, Durstine & Osborn, Inc.

St. Louis Car Co. 35
Standard Oil of California 21
Agency—Batten, Barton, Durstine & Osborn, Inc.
Striegel Supply & Equipment Corp. 73

Tennessee Coal & Iron Division,
U. S. Steel Corp. 28
Agency—Batten, Barton, Durstine & Osborn, Inc.
Timken Roller Bearing Co. ..... Back Cover
Agency—Batten, Barton, Durstine & Osborn, Inc.

Union Switch & Signal Co. 2
Agency—Batten, Barton, Durstine & Osborn, Inc.
U. S. Rubber Co. 37
Agency—Fletcher D. Richards, Inc.
United States Steel Corp. 28
Agency—Batten, Barton, Durstine & Osborn, Inc.
United States Steel Export Co. 28
Agency—Batten, Barton, Durstine & Osborn, Inc.
United States Steel Supply Division,
U. S. Steel Corp. 28
Agency—Batten, Barton, Durstine & Osborn, Inc.

Vale Products, Inc. 73

Waugh Equipment Co. 31
Westinghouse Air Brake Company 23
Agency—Batten, Barton, Durstine & Osborn, Inc.

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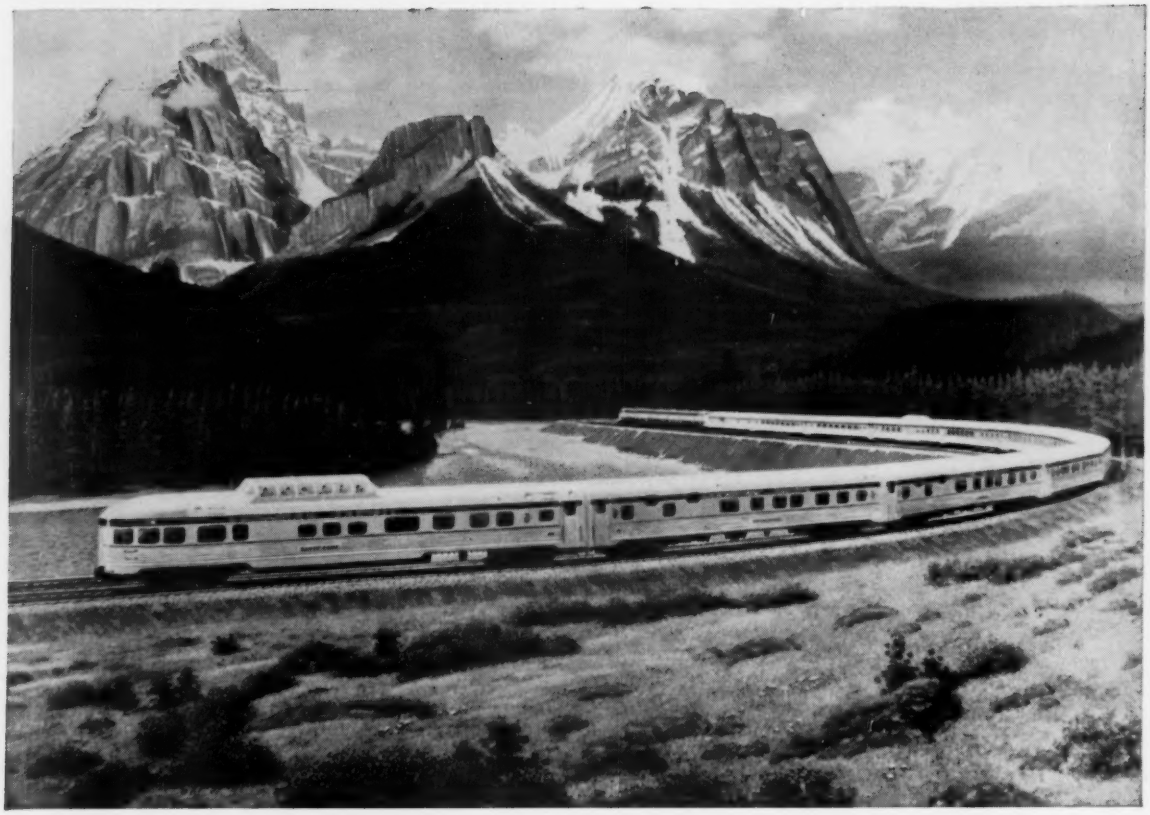

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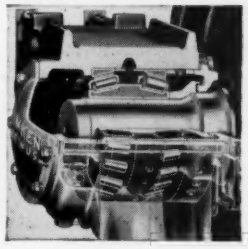

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